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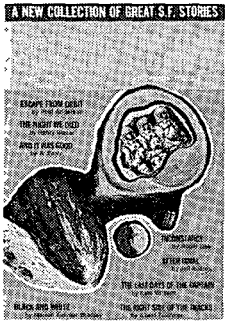

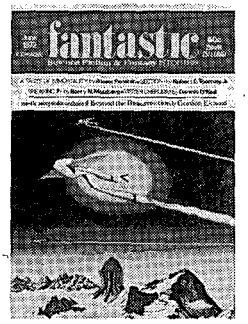

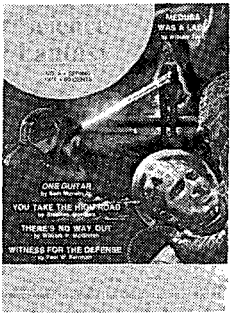

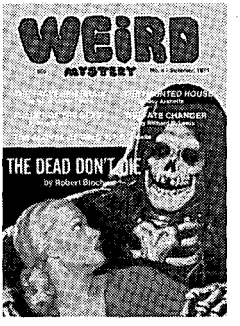

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A GREAT NEW COLLECTION

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Another Dimension

A Sequel to Beam Transmission

By GEORGE H. SCHEER, JR.

The author of this story is known to our readers and he made a very pleasant impression on them with his story entitled "Beam Transmission." Here we have quite a vivid interplanetary story.

"BELL, you are simply becoming the most dissatisfied and uncomfortable man it has ever been my privilege to see or to work with!" This from Pearson who had been watching me closely for some time. "If anyone had told me that things would be as they are now, I certainly would have considered him completely out of his head. Do you realize that three or four of us own the world, run the governments, rule the people, everything! And all of this in six short years. Beam Transmission, Inc. is the biggest thing that ever could be. We do the world's shipping. Our new atomic power stations will heat and light the earth as well as furnish power to the whole blamed thing. There are no more railroads, not even for passenger service since people have come to consider beam transmission as safe for traveling themselves as for sending anything from a letter to a ton of bricks. If we were what we never shall be, we could do anything we desired to the earth. We own it now, but we do not brag about it. And all of this resulted from our thesis subject at the University six years ago! There you sit, sour as can be. What a parable."

"Go ahead, Pearson," I returned. "I have it all coming. As president of this outfit I should be content, I suppose, to forever lounge in this walnut, chromium-plated office. Exquisite and superb may describe it deservedly, but it makes me sick! I want to really do things. Now that the atomic power development has progressed from the experimental stage, and our efficiency of beam transmission is so good that, if we made it any better, we'd have to pay the people to use the service instead of getting three cents a ton per thousand miles; and everything runs like clockwork and probably always will, I don't want to hang around here. My salary, as well as yours and Kroelich's, would keep us in luxury all of our lives if we took but one week of it a year. Have you fellows atrophied, or something?"

"Well, where to? The moon for instance?" was Pearson's answer.

"Sure, anywhere suits me. Only let's do something, or I'll burst into tiny fragments before so very long! Lele's been telling me that I should find the fountain of youth or something to improve my disposition. I've been just rotting here for years."

Kroelich, our former radio engineering instructor, chuckled now and then in his corner of the office, his feet on his desk, a desk that must have cost a thousand dollars if it cost one.

"Yes, you are as bad as the rest of them," I told him. "If everyone in this

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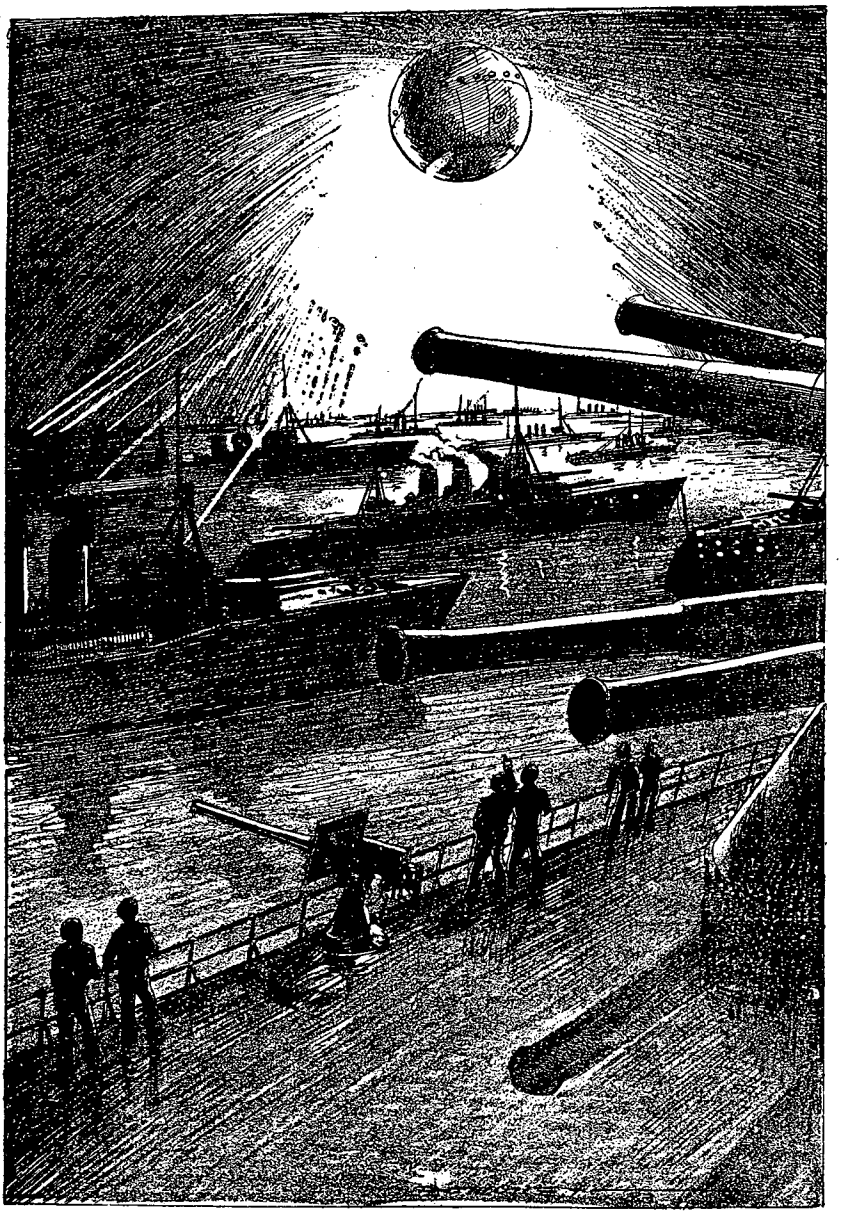

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outfit did as little as we, there would not be anything to stand on!"

"Now, Bell, we're just paying for being the world's luckiest men, that's all. You know, if there were anything to be done, we'd be tickled to do it with you. Transportation is so blamed fast now, instantaneous in fact, that a trip anywhere wouldn't be any fun at all." The easy-going answer demonstrated perfectly that Kroelich would just as soon never leave his comfortable, padded chair, even to eat, if it had not been for the appearance of doing such a thing. "Of course, if our president wants us to think of something for him to do, we shall most certainly go into conference and oblige him!"

"Rats to the whole bunch of you, and I'll include myself to save any hard feelings. Call Krinsti, Obert and Waller in here immediately, Calloway. Tell them to drop everything!"

"Now something will happen. With all of those ponderous brains in one room, there is no room for me!" With this remark, Pearson rose to saunter off, but I asked all to stay.

"We might as well branch out a bit. Why not be of some real benefit to humanity in addition to owning everything they have? It is our moral obligation."

"They have more now than is good for them!" This answer from Pearson.

A BUZZER broke the silence as we awaited the three scientists, considered the foremost of the day in the fields of electrical and physical research. With unlimited money at their disposal, there was hardly anything, once conceived and established, they could not do. They were truly geniuses.

"Dean Harvey!" exclaimed Kroelich.

At the mention of that name all of our faces lighted up. In came a small man, typical of his breed, quiet, unassuming, but one whose word and judgment you would never even think of questioning.

"How is the Harvey Cancer Institute progressing?" I asked.

"Fine, Bell. Fine, indeed!" was the answer. We loved the old fellow and his quaint ways. "You know, we almost lost an old man last week, but I think he will pull through. Been getting a better serum, too, the last few weeks. Not that we need it any better, but it saves time. In six years we haven't lost a case, and, I'll tell you, we used to get some mighty nasty ones at the start. Now, of course, the monthly examination required of everyone makes it easy. And how is 'Beam Transmission' faring? Well, as usual and must say deservedly. My, my! Think of the perfect cities you fellows have built, spick and span. What a change in so few years!"

"Save the compliments, Dean," I said. "You have done more by ridding the world of its worst scourge than we can ever do. Did you get that billion dollars we transferred to your research account this morning?"

"Ah, yes, yes!" was the Dean's answer. "That is why I came over to see you. I, that is, we cannot accept it, you see. It is such a vast sum of money, and we have enough already!"

"Enough, like fun!" said Pearson. "Ninety per cent of your work is charity."

"True, my boy, but mine is not a business institution such as yours. I cannot turn anyone in need from the Institute."

"How have your bone-growing experiments been coming along?" I asked, knowing what the answer would be. "And the problems of retina

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replacement, and revival a day after death, and all of those things you were talking about years ago?"

"Well, Bell, that work all takes time and patience, you know. It cannot be done in a day."

"Have you started on any of them?"

"Well, in an indefinite sort of way, perhaps."

"Is lack of money any obstacle in your path?"

"Not exactly. You see my staff—"

"You really want to benefit mankind, don't you, Dean?"

"Of course, of course!"

"And if you had the money, your staff could be enlarged, and you could work on all of these new ideas of yours simultaneously?"

There was no answer to this as the Dean's eyes remained studying the pattern of the rug upon the office floor.

"We have humanitarian ideas too. We have cleaned up everything in this country and are working abroad, but, to tell you the truth, we cannot spend money fast enough. There is too much of it. That is why we figured the most good we could do was through you. We shan't take 'no' for an answer, will we, fellows?"

Pearson and Kroelich shook their heads solemnly. Since we had learned to talk in billions, they thought nothing of giving away a billion, though I remembered several instances, and I know Pearson did too, when a dollar some years back had been bigger to us than the billion we were giving to the Dean.

"Sorry, Dean, we can't be refused!"

"Of course, I could use a few thousand, boys, but a billion dollars staggers the imagination. I could not believe my eyes when I saw it."

"The more money you have, the more good you can do, Dean," said Pearson as we escorted the old man from the office in spite of his protests. "And there is more where that came from, too!" we reminded him.

"That tickled me," said Pearson after we had re-entered the office. "He'll worry about how to start spending it for a week, and I'll bet at first he spends it a thousand at a time. And the old boy will do more good with that billion than we with the ten billion we are spending for reclamation and all of the rest of the plans. I see your brain-trust is here!"

CALLOWAY had just entered with the three men, Krinsti, Obert and Waller.

"Be seated, gentlemen," I said as I stood before the group of six. "Waller, you said something about a year ago which has been in the back of my head for the past few weeks particularly, but in general, since the very day you mentioned it. Pearson and Calloway weren't there, but Kroelich was. The idea was to project, if possible, a conducting path to some of the nearer planets for purposes of communication. It is the best means of getting outside the Heaviside Layer, and the only means of transmitting large amounts of power. And I don't want to stop there! Rocket ships have been tried. Some were successful in a couple of flights, but only between points on the earth. For anything in the shape of a space-ship to leave the earth, the initial acceleration to get out of the pull of gravity by circling the earth in an ever-increasing spiral course so that the acceleration would not be harmful, would require too long a time to build up as well as more fuel than could be carried. In a straight course, no living being could survive

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the necessary acceleration. Even atomic power does not eliminate the acceleration effects. So, you three men will work on the problems of projecting a conducting beam to any desired planetary point. After this has taken shape and the formulas are developed, the space-ship will be next on the program. This ship will be propelled by a force beam traveling coincident with the conducting beam and will neutralize the earth's attraction."

As if I had but given them a routine testing problem, all three men left the office when I had finished, never doubting their abilities. "Can't" was a word entirely foreign to them with the equipment and resources at their disposal. These three men had made possible world-wide television, beam transmission for freight, express and personal transportation, and they had paved the way for atomic power.

A few motor cars and planes still plied the surface of the earth and the sky, but these were only for pleasure purposes. Cities were no longer dusty, grimy and smoky. The air had an invigorating freshness formerly found only in rural districts. This was indeed a new day and age for all of mankind. Development had been most rapid in America, but now the world was feeling the movement, even to its furthest corners.

I could see a look of interest, which had been missing for many months, even for years, in Pearson's eyes. "So that's the story, Bell! Perhaps there is something left to do on this world after all, or should I say, universe? Aren't you content with owning this globe without bothering our heavenly neighbors?"

"Won't you ever quit that line of chatter?" I answered. "Can I help it if you made me the president of this outfit six years ago, when I was helpless? I wish one of you fellows had been last from Sar and had been cracked up, so that the rest of us could foist this job on you!"

I did not really mean all this, but it was my only defense against Pearson who, good naturedly enough, forever kept putting the thing up to me in his banter which, at times, seemed never ending. Being president did not mean so much after all, for the others had just as much to say in the management of affairs as I had, and all of us had more money than we could ever spend.

"The whole idea is this," I continued. "What will the millions do who are gradually being replaced by machines, now that atomic power is beginning to supplant and replace all other methods of conversion? Why not do a little investigating to open new fields?"

"I don't know what you are going to find, but it sounds interesting enough," commented Kroelich. "At least, we'll be better off if we can drop this useless Pearson on Mars, without a return ticket!"

"Go ahead, you two. I suppose the world would be better off if I weren't around. I sometimes feel that way myself, but I am morally obligated to sign the some odd thousands of checks of our staff, and I don't think you could get anyone at my salary, even, to do that lot of tedious work every week. I'm going to have a rubber stamp made of my signature, and let a clerk do the work hereafter, and I'll just stay home!"

"Well, Pearson, aside from all of the joking, wouldn't you like to do a little visiting in space, outside of our little trip of a few feet, which, six years ago, led to all of this? It has been thought of for centuries, no doubt, but no one so far has had the advantage

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of resources and atomic power which we have. I don't suppose we can do it, but why not try? The experimenting and research will be interesting."

"If it weren't for what we went through so long ago, I'd say that even such thoughts were figments of a fast-failing mind. But in the light of our experiences, which seem like a dream to me now, it might do to try. I suppose your conducting beam will enable you to get signals through to and from the other planets if there are things on them with sense enough to understand what it is all about?" Pearson really seemed to be favoring the idea.

KROLICH had begun to do some figuring on a pad before him. He looked up after a short time.

"Really, the thing does not present such great difficulties. A modification of our present system should do the trick. But I am a bit worried about dissipating so much power at the source. Rough calculations mean some seven billion horsepower at our transmission point. That is, roughly speaking, to cover the distance to Mars, allowing our accepted constants. About 400 pounds of silicon dioxide a second. And with our efficiency, it means six billion horsepower in heat to get rid of. Oh, boy! Think of that, and it will keep you warm for several winters just considering its elimination! I see where we go to some new liquid gas for a cooling medium. Running a thing like that for any length of time will change the climate on this earth! Not a bad idea when those ice caps begin their next predicted descent from the poles."

Pearson was standing over Kroelich. "Say, where do you get that power figure just for a beam for a signal path?"

Whereupon argument followed argument for some minutes. It was discovered that Kroelich had made an error in one of his constants, and the power figure was reduced to less than a million horsepower.

"Kroelich, what would I need to project a thousand ton space-ship at a constant acceleration of five miles per hour per second? That is roughly an acceleration of 7.3 feet per second per second. If we figure half of the elapsed time for accelerating and half for decelerating, it would take about one hundred hours for the trip to Mars. Hmmm. The maximum velocity attained would be, whew! 900,000 miles an hour. If such a space-ship ever hit anything! Let me check it back to make sure. Yes, that's right. We could perhaps stand an acceleration of ten feet per second per second without undue strain on the human body. But, anyway, one hundred hours is less than five days for a trip to Mars!" With this I laid aside my slide-rule and began contemplating what the real thing would mean, if it could be done, of course.

"No trip at all to the moon at that rade, Bell," said Pearson as we awaited Kroelich's figures on the required power for the space-ship to traverse the distance to Mars.

"Well, let's see. It won't take but a moment to get the rough figures. Only eight hours for the trip, and the maximum velocity would be only 72,000 miles an hour. A pleasant night's trip. I suppose we could build a receiver and transmitter on the moon for beam transmission, but I shouldn't care to take the trip personally. I can't help but remember the chances we took on that one journey six years ago. What fools we really were, and all of our present success is but fools' luck, really!"

"Right back at the seven billion horsepower figure, boys, and this time

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I made no mistakes," said Kroelich, interrupting our conversation. "It is still a problem, but we'll do it if it can be done. Say, it isn't so bad to design a ship to withstand external pressures, but in this case we'll have the problem of withstanding internal pressure. A sphere represents the strongest form for weight for the former, but what sort of a looking thing will we have for this outfit? Hold on! We have only fourteen pounds per square inch, which won't cause us any trouble. The heat insulation will be the real trouble. The radiation will be terrific with such a steep temperature gradient between inside and outside."

"Well, what a day this turned out to be!" said Pearson as he shook his head and whistled. "But if I can find a lovely lady on Mars for a mate, as you did on Sar, Bell, I'm all for it. The sooner the better for me!"

"I'll relay the compliment to Lele, Pearson," I replied.

"Come along to the transmitter, Bell!"

"No, I'm taking my ship tonight," I said. "I feel just like the spin!"

"Fine advertisement you are for Beam Transmission, Inc., if you never use it for personal travel."

"Good night, fellows!" I said as they entered the transmission chambers and were whisked instantly to their destinations without even a sense of motion.

I took the elevator to the roof, some two thousand feet above the pavements below. The sky was ablaze with the lights of the metropolis this December evening. The air from the Lake was cold and penetrating. The attendant maneuvered my gyrocopter to the edge of the roof, whereupon I entered the heated cabin. In a moment I was soaring far above the lights and moving swiftly westward.

MILES later I gazed up through the glass dome of the cabin at the brilliant splotches of light above in the black velvet of the heavens. Some planets, but for the most part, they were suns, bigger than our own, with planets most likely inhabited by reasoning beings, perhaps billions of years advanced from us. What a glorious undertaking to attempt to really solve some of the wonders, if only in our own little system. Writers, years before and even now, were painting fantastic but inviting pictures of our planetary neighbors. Would the time come when they would no longer be writing fiction but modern history instead?

I was determined to make the attempt at least, dangerous though it would prove to be. Once before the four of us had been on a strange world, tiny to be sure, measured by our standards, an electron, no doubt, but vast to us then as our own world. If Mars were inhabitable, a receiver and transmitter could be set up there, assuming that minerals and products valuable to us existed. I hardly formed an idea of what the inhabitants might look like or what their civilization might be like. The existence of life had been proven almost beyond a doubt. Air, similar to ours, surrounded this old red planet too. But out of our own system might life not exist in a different atmosphere? Could not a reasoning being have a different method of metabolism and still be alive? Why must all flesh and blood be alike in the endless infinity of planets?

These things were still whirling about in my brain when I landed in the courtyard of my home. Lele, wreathed in smiles as usual, greeted me lovingly.

"Bell!" she exclaimed," you are a

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changed man tonight. You are actually using your head again instead of letting it remain useless! Tell me what you are going to do now. It must be something really wonderful?"

Such child-like eagerness! One could not withstand her begging for very long. I had tried it many times before but had always failed. At the dinner table I unfolded to her eager ears the afternoon's discussion. It was vague, of course, for the practical benefits were yet to be discovered, but it would mark, were it successful, the opening of a new epoch on the face of the earth. I knew, however, that Lele would be a pest from that time on, for she loved nothing quite so much as using her imagination, and this certainly was an opportunity. Every day I was to hear her ever-changing ideas on the physical appearance of Martians, one day large and black, the next, small and white. I told her that we'd know for sure some day and not to bother wondering about it, but that did not stop her at all. After she ran out of ideas on what the intelligent inhabitants looked like, she started on domestic animals, then vegetation and even scenery.

And yet, with all of her imaginings, she had a very practical mind, trained to precision and accuracy for years in the laboratories of the Sarians under the direction of the superintelligent creatures called Fyns. She had retained enough of her technical training to give us fundamentals for the rays used in her land and protective ion screens to repel them and render them harmless. We were able to reproduce them through this aid, but the applications of rays were limited to very large excavation projects and the like. Wars were now a thing of the past unless Beam Transmission, Inc. did the warring. There would be no fighting between nations because the rules had been laid down by us, and, with no means of transportation, there could be no war. The world was enjoying a new era, though we knew very well that more than a few years would be necessary to wipe out inherent race-hatreds and jealousies. We would never see that time, I was sure, but it would come.

Although the three scientists encountered many vexing problems, the day finally arrived when they had made enough progress to inform us that a project of the kind was practicable. They had checked with Kroelich on the ray generator. We now had merely the practical application to attend to. The spot for the transmitter was purchased. We picked worthless desert to serve the purpose, since inaccessibility no longer was a known term on the earth.

Before long the walls were complete and air-conditioning units installed, as they were in all buildings and homes. A transmitter and receiver were set up first, since all materials and men could be transported instantly, and the working time was cut to an unbelievably short number of days. The cooling medium for the generator would be liquid carbon dioxide, as in the usual high-powered unit installations. The fuel could be easily obtained from the surrounding desert. Though aluminum base fuels, such as clay, resulted in higher efficiencies, we had enough sand to do us for a million years if necessary, just for the taking.

IN exactly four months from the starting, we were standing in the insulated control room above the transmitter which was located in a great well two hundred feet across and a hundred feet deep. The installation, really a simple one, was the neatest

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my eyes had ever beheld. The shining anode was polished to a perfect mirror finish, and shone like a white-hot piece of metal in the brilliant lighting of the metal-lined cylinder. The singing of the idling atomic generator, five units in all, was audible faintly as last minute checks were being made by the special operating staff, made up of picked men, highly skilled, and under the direction of the three scientists. Tests could be made for only a few moments, seventy minutes at the most, because of the small arc which could be covered by the rotation of the transmitter. But a series of night transmissions should, after a time, result in a response from Mars, if there were intelligent beings living on it.

A radio transmitter of very great range and power was waiting to send its message over the beam to the planet some 40,000,000 miles away. An observatory, too, had been built connecting to the transmitter building. We were awaiting the signal to begin our broadcast. The beam would cover approximately half of the area of Mars turned toward us. We were a bit in doubt as to what corrections to make for curvature of the beam. In fact, it would be perfectly possible to miss such a small mark at so great a distance. Yet, we could not widen the beam too much, because of the decreased conductance on the surface of Mars. Were there a great deal of moisture present in its atmosphere, our transmitter would be lacking in power to penetrate the veil, unless the beam were narrowed very considerably. In this case, our chances of missing the planet entirely would certainly increase manifold. We were simply making the first check, hoping that the figures of lifelong astronomers and mathematicians were sufficiently accurate and reliable to give us a good chance of getting our beam through to Mars. The beam would be conducting both ways, of course, enabling Martians to signal us. We had no idea of what to expect in the line of a signal than they knew what we should send, were they aware that transmissions were to take place to them. A gong suddenly sounded.

"One minute to go! Make ready!" shouted some one from below. The words echoed and re-echoed in the well. "All inside insulating chambers!"

The silence was broken only by the steady hum of the battery of generators. We were breathless ourselves, with no words on our tongues. What could be said, as only seconds remained before an event which might alter future history entirely? Would the cooling system handle the great dissipation? Could we possibly hit so small a target at so great a distance? These and many thoughts raced through my brain as the seconds seemed to drag by. Mars would soon be in position.

"Time!" whispered Pearson at my side.

We watched the indicators closely. A tremor was becoming very noticeable.

"The beam is on!" shouted Kroelich, bringing us all out of our stupors. "Look at that power rise—wow!"

We had all seen such figures before in our central stations, but now they took on a special significance. All of this power was merely throwing a conducting beam for millions of miles out into space, and all we could see was a misty ionization of the air within the generator well.

"Operator! Send the code message," I said to the man at the radio transmitter controls at my side. "Repeat for each frequency range until you

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reach twenty-five megacycles. Receiver man! Follow the bands and get your reflection of signals. Tell me when you have your first reflection. Calloway, you vary the angle over the established limits!"

IT would take a little less than seven minutes for a signal reflected from Mars to come back to us from the surface of the planet at its present distance. This reflected signal would be necessary to know when we hit our target. From the investigator's point of view, this alone would mean the changing of theories to laws, for the curvature of a beam in space could be definitely determined. This would be invaluable to our future transmission experiments when we could calculate with exactness the angular error due to beam curvature in space due to the sun and other bodies. Many years before radio reflections had been received from the moon but from no greater distance, due to attenuation. These cases were considered more or less as accidents at the time.

"Cooling system is holding up all right, but it certainly is handling a healthy load," said Pearson, as we intently watched the man at the transmitter. "Now we are dissipating half a million kilowatts into thin air, or I should say, space."

"Quit your chatter, Pearson," exclaimed Kroelich good-naturedly. "Can't you see we are trying to hear something?"

"Reflection!" shouted the receiver man. "Something wrong, because the distance is only 11,000,000 miles, sir!"

"Hold it there," I said to Calloway. "Transmitter man, send out your dashes again."

One hundred eighteen seconds for reflection. It was impossible to change the velocity of the signal, certainly.

"Observatory calling, Mr. Bell!"

"All right. Hello, Carter? What? Are you positive? Be right over!" With that, I shouted to Kroelich and Pearson, "We've hit with our transmission as an asteroid or space-ship or something. Hustle! We'll get a look at it."

A mixture of emotions swept through me, but, by the time I had reached the telescope-screen, I had made up my mind that it was merely a small planetoid in the beam.

A single look told us little. There was an object, but it was such a mere speck that nothing could be definitely determined. It did shine at times, or seemed to.

"That is maximum usable amplification tonight, gentlemen," said the astronomer. "That 'air' is a bit bad, undoubtedly due to the amount of heat being radiated by the generators."

"Call Thibault immediately!"

"He is calling now, but he cannot make out much more than we can," reported an attendant who had just come in from the phone. "The earth seems to be in a direct line with its course, however!"

Obviously, there was no thought of sleep that night. Although we were all agreed that the possibility of a space-ship on its way to the earth was most remote, I knew that all of us could not throw that possibility from our minds. As the hours passed, the object became more plainly visible. With the approach of dawn, I called Lele and told her we were going to the other side of the world for observation purposes. More I did not tell her, or she surely would have gotten there as soon as we did. The observatories on the other hemisphere were hardly comparable with ours, but with the

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approach of the object, their shortcomings would be less noticeable.

"Call Cook and tell him we'll be right over," I said. "All set?"

"Surest thing you know," replied Pearson. "Looks as if you and your ideas have started something. That object would not be visible if it were not for radiations in the light spectrum caused by the transmitter beam. And that would happen only with metal. If it isn't a space-ship, it must be one big piece of metal in an uncombined, in its native state!"

Although I made no answer as we stepped into the beam-transmitter chamber, I agreed with him. That made the space-ship theory more plausible. Was it directed at the earth? Where did it come from? What would the occupants look like, and would they be hostile?

"Carter, call the generator station and tell them to hold the conducting beam as it is, until we call back. They can keep it only a few minutes longer now."

With that, we closed the door, and in an imperceptible interval were whisked half-way around the world. Cook, the astronomer in charge of the observatory was waiting for us in the receiver room.

"Are you in touch with Thibault and Carter?" I asked.

"They are both on the wire, Mr. Bell. Our reflector is being trained for the position of the object as soon as it comes around to us. It won't be many hours, now."

We sat in the office, saying little and wondering a great deal as the sun set in the western sky. We did not think of the marvel which had permitted us to see the sun almost rising on our side of the world and about to set where we now were, all accomplished in the twinkling of an eye! Those minutes until the object would come into view were the longest I had ever spent up to that moment. Pearson smoked one cigarette after the other. Kroelich paced the floor nervously, while I sat quietly, looking at things with eyes that did not see. For some reason or other, if this were a space-ship, I was sure that it was not on a friendly mission! Why I thought this, I do not know. I should have been anxiously awaiting its arrival if it were earth-bound, for it would be the first event of its kind. Instead, I was worried and sick at heart.

THE long-awaited night was descending. We arose from our chairs and walked to the observatory dome. Images were average that evening. It should be possible then to pick up the visitor if any reflections from the sun and from it could be seen. It had long since passed from the range of the beam on the other side of the earth.

"We have it, gentlemen," said Cook as we stood above the black screen. "I have gotten in touch with Bouche to attempt to determine its velocity, path and size. We hope that, before the night is over, we can give you these figures within some degree of accuracy. In the meantime, all we can do is watch. You'll excuse me if I leave you for these purposes?"

We nodded assent, and for the next few hours watched the screen before us most intently. The object was not as yet sufficiently close to make out at all clearly.

"To keep a course like that, it must be under some sort of direction all right," mused Kroelich. "It certainly is not in an orbit around the sun. It's a space-ship as sure as I am a foot high!"

Yes, it certainly was. There was no

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doubt about it now, though none of us had ever seen one. The report, as dawn approached, was that it was nine million miles distant, traveling at a constant velocity of 170,000 miles an hour. From the calculations we had made for our space-ship, this was relatively slow, but she might be merely cruising at that speed. Her course was directed at the earth. Her size was almost a thousand feet in diameter, her shape being spherical. No signals, which could have originated from this ship, had yet been picked up.

"Well, fellows, I'm almost dead, and there is nothing we can do about it but wait," I said as the sun was dispelling the black of night with a faint glow in the east above the mountain tops. "I could sleep for a week the way I feel now! Let's go home and have the transmitter kept on this fellow and the signals along the beam kept up. There isn't a thing more to be done. If they want to land, we can't do a thing to stop them, but we can hope for the best. I don't know why I consider them to be enemies because they probably are on a friendly trip of exploration. It will be some little time before they reach us if they keep on at this rate!"

Lele was very much excited over the news, and never once considered the angle of danger I had. She felt sure that the visit would be a friendly one and started off on her imaginings as to the probable physical appearances of the space navigators. I heard little of her ideas that night, however, for I was exhausted and fell into a deep slumber immediately.

This was not to last, I found, for, after two hours, a frantic call from the beam station aroused me. The station had been suddenly put out of operation and the battery of generators badly wrecked! Almost before my eyes were open fully after my short slumber, I was transferred to the new station. Lele had come beside me, and in a very short time, Kroelich and Pearson appeared on the scene of the disaster.

No one had been badly hurt, but the power units were hopelessly ruined. I demanded a complete and concise report of what had happened. Everyone agreed on the story to the smallest details, so that I took it as it was given by the chief attendant. Shortly after the ship had come within the beam of the transmitter, signaling was begun. Almost immediately, sharp rasps were heard in the receiver in the neighborhood of ten megacycles. Following these notes, there was a violent tremor in the station, a severe jar and a great display of flames and coruscations within the shaft, and for miles out into space. Then the generators gave out. Indicators on the board were bent and burned out, indicating that a tremendous instantaneous overload had wrecked the system. It must have been too sudden for the circuit breakers and safety devices to function. The observatory reported that the space-ship was now practically stationary in position.

This was indeed a pretty mess! Unquestionably, the ship had been directly responsible for the wreckage. That meant too that they had a goodly supply of powerful destructive energy, and they used it almost playfully. Certainly they had no idea what work had been going on. Just for the fun of it, as it were, they had put a million dollars worth of equipment out of commission! And, since they were earth-bound, they probably would continue their destruction to show off their prowess. We could never hope to build up defensive and offen-

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sive weapons in time to meet them equally.

For two days the space-ship remained more or less stationary in the heavens, apparently awaiting another beam from the earth, but none came. Work was begun, however, and in two weeks the station would be able once more to operate. I believe that every one of us breathed a sigh of relief when, after the two days, the vandal started off on another course, this time at a much higher velocity, sometimes exceeding a million miles an hour under prodigious accelerations. In two weeks she could no longer be made out in the heavens.

THE protective devices at the new beam station were made far more sensitive than they had been before. Every precaution was taken to prevent a repetition of our first experience. We were all outspoken in our fears of what might transpire if the marauder saw fit to return to the earth again, especially if she chose to make a landing and look about a bit. In no time at all, everything would be ruins and chaos if the vandals chose to eliminate the present inhabitants of the world.

Once more the attempts at communication with Mars were begun, and this time they were not interrupted. After three nights, the planet gave back a reflection of our signal, and, three nights after this, signals were received from Mars, both voice and code. We rather expected to hear voice frequencies similar to our own, since conditions were so much alike on the earth and her near by neighbor. They did extend to higher frequencies, with fewer lower frequencies, but not above the range of the ordinary human ear. Since these sounds did not resemble the sharp rasps we had received in our first tests, and which we had thought came from the space-ship, we were certain that the origin of this space-ship was not Mars, or at least not from the same portion with which we were now in communication.

It was now merely a matter of establishing a common language, a thing not easily done. While these things were being evolved, our minds were forever being haunted with memories of the space-ship. What if she were not alone, but merely an advance scout for a great air fleet, or rather ether fleet, to which she might have returned with the news of the beam from the earth!

"Something must be done and done at once if we expect to at least feel safe from now on. We have seen our first space-ship, and it will not be our last, or, it may be if we are eradicated from the face of the earth by one or some of them. Exploration of the heavens has reached our solar system. It probably has gone on forever since time began, but we have not known it nor have we anticipated it." Dean Harvey hesitated as he viewed our haggard and worn-looking faces. We were in a serious predicament, and we knew it. "We, as exalted mortals, have never thought that space would be conquered unless we conquered it. Time is endless, the universe is infinite. There is no yardstick by which to measure either. Hence, I can say without fear of contradiction that intelligent beings have always traversed space and always shall! Possibly the earth has been visited before, millions of years ago, but we know nothing of such happenings. Our well-being today resulted from what we learned on an electron in an atom in a molecule of a brick in a wall. We are all positive of that now. Our jour-

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ney to Sar was only a matter of feet. As I see it, and I know you gentlemen will too, our future well-being and safety may be said to have resulted from that same journey. We must wall the earth with protective screens even as the Sarians and Poruvians did. We must build giant engines of destruction to combat outsiders who come with destruction foremost in their minds!

"As a digression, perhaps space-ships saw even the lands of Poru and Sar, space-ships, microcosmic, plying between electrons in materials visible as solids before our very eyes. And in the macrocosmos of which our earth is but an electron, space-ships no doubt travel. There is no end in either direction. That must be our present picture of the term, infinite!"

Such a discourse from the Dean was unusual in only one respect. We were startled by the declaration of war against space-marauders from such a quiet, peace-loving old man. At the time, however, it did not seem so very much out of place, since we had a serious problem to face, so serious in fact, for the very existence of the earth at that moment probably depended on the five of us! We did not think of the glory, nor did we think in terms of the tribute we could exact for saving the earth. We were merely doing what we knew must be done, without thoughts of reward. The recompense would be our continued existence, the saving of billions of lives, and the saving of the greatest industrial combination ever to exist upon the face of the earth. There was none else to do it; the job was ours!

The governments of the world were with us as a unit. No petty arguments now. The world was united in a single prayer that we be in time. Years would be required to build up any sort of defense which would stand the onslaughts of ships with the power possessed by our single visitor.

Ever hopeful, the job was begun. Disgusted as we had been at the terrible destructiveness of the weapons we were about to build, we were thankful now for their terrible effectiveness.

THOUGH a constant watch was maintained at all observatories on the earth, no sign of the space-ship was reported. As weeks grew into months, some measure of reassurance came back to all of us. We might never again in our lives see another, but we had not forgotten our first impression, and no time was being lost in building up the defensive and offensive weapons. The task was gigantic. The rough area of land and sea to be covered represented about 200,000,000 square miles. The trillions of horse power necessary to maintain an effective screen over such an area staggered our minds.

We were undaunted, however, thanking our Maker that we had atomic power at our disposal. Without it, we could not have begun. Even this tremendous amount of available energy would not prevent access to the earth's surface, if the screen were attacked heavily at too many points. It could be concentrated at almost any number of points, leaving it quite ineffective between them, and, the greater the number of concentration points, naturally the less the energy available at any given point. Our plan was to build the complete system first, and, if time permitted, to continue to add power stations to increase the effectiveness of the screen.

Giant cutting-ray projectors worked as they had never before, excavating

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for the monstrous power station foundations in the polar regions, in deserts, in tropical jungles, in temperate waste-lands. There was no let-up, and, as the work progressed, our fears diminished. We had thought our central station installations of the year before, a billion horsepower in a single station, had been an achievement, but these were dwarfed in comparing them with the stations being built for the protective screen. Twenty of these super-stations would be necessary for one screen projector, twenty of which were being built as the first project. Many others would be required for the destructive rays. As for different special rays, no need had arisen for them after our first acquaintance with them on Sar, but such projectors were being constructed now, and in vast numbers. The world had turned mad in its thoughts of preservation, and hardly a man was not working on defensive or offensive weapons. This necessitated the perfection of concentrated synthetic foods, since none remained to till the soil, even though machinery had replaced human labor to a very large extent.

At times I sat in the office or at home with Lele, looking upon all this feverish activity with a detached mind. How laughable it seemed then to look upon the world swarming with little things called men striving insanely to preserve their precious lives. And all that had happened was the sighting of a space-ship, their first space-ship, which had almost frivolously damaged a conducting beam transmitter. Perhaps it had been done only in curiosity!

But the sight of Lele and thoughts of her always brought me back to normal, and now I was one man, with the rest of them, fighting for her life, and I was the inspired leader of all of them. Work never progressed rapidly enough, nor could enough power be dissipated from a single unit atomic converter.

It would be wrong to say that all of our time was spent in directing this wave of preparedness. The five of us, once the work was well under way, did little to further it outside of supervision. Our staff was entirely capable, and I had no fears that the final outcome would be anything but as near perfection as possible. It seemed an epoch-making era, for we had established communication with a planetary neighbor and had been visited by our first extra-terrestrial visitor.

A second and a third conducting beam transmitter were rapidly nearing completion to maintain a more nearly continuous conversation with our neighbors. Ground was being broken for eighteen more as well, and pilings built in the seas where necessary. Outside of a few lessons in mathematics, our exchange of ideas had not progressed so very well. It can well be imagined what the difficulties were inherent in the scheme of establishing intelligible communication with an unknown race on a distant planet!

We were hurrying the completion of our space-ship to be sent along the beam to Mars. It was our only hope of ever establishing relations with our neighbors. This ship had been pronounced practical after the first survey of the problem months before. Our only fears and concerns were over the problem of the natural missiles of space, meteors. We hoped that the screens and detectors could be made sensitive to their approach, and their deflection or ours accomplished in time to avert catastrophe.

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Our ship was not an impressively large affair, but we felt that she would serve her purpose. She was a long torpedo-shaped cylinder, twenty feet in diameter and one hundred and fifty feet in length. While this, in truth, was not a space-ship in the full sense of the word, it could be called such by virtue of its space-traversing ability *via* the conductor beam. It could not navigate space because it had no means of propulsion other than rays which were effective only over distances of a few thousand miles. The repulsive rays and attractive rays lost their energy rapidly in space. The calculated energy required to overcome gravitational pull, if supplied from the ship, would be almost an impossibility, and there was no need for it as long as we could supply this energy from an earth-station and be pushed along by the force superimposed on the conductor beam. The net result was the same, but the ship design was simplified a thousand times, and the power plant necessary only for maneuvering over the face of a planet, a dwarf compared to the plant of the earth beam-station.

WE often mentioned the huge units which must have been contained in the enemy space-ship, which would permit it to go about free in space from a planet and come near another attracting planetary body and neutralize its attraction. The power which had wrecked our first transmitter was but a drop in the bucket. The Dean suggested that they drew their energy from space radiations and merely controlling them, rather than converting them from matter aboard the ship. We knew relatively little of the radiations of outer space, and had hoped, when our idea had first been conceived, to find out more about them than the previous stratosphere flights had shown some years before our time.

Although continuous communication had been maintained for many months with the Martians, very little progress had been made and very little learned. The day arrived when our space-ship was ready for its projected flight or "glide" to our ruddy neighbor in space. The distance separating her from the earth had increased quite a bit from the time we first made contact, but the trip would take only one hundred and ten hours at the most, at an acceleration of 7.3 feet per second. Anything greater would be too uncomfortable, and there was no need for any great discomfort in making the first trip. I anticipated long beforehand that which did come up on the eve of our departure. Lele would do nothing but go along, so there was nothing I could do about it. I had a peculiar feeling, selfish, of course, that, if anything did happen, I wanted her with me. So, I was not as unhappy about the outcome as I pretended to be.

Calloway would remain behind to give us any news, and we, in turn, would give him plenty of it if we reached our destination as we knew we should. All calculations had been checked, and it was no worse than the first attempt we had made in visiting another inhabited body seven years before. In fact, it was less hazardous in every way we could think of. This time we knew where we were going, we knew the method. Only we did not know what we would find. At least we hoped for an intelligent race with gentler emotions within them, than those which our first extra-terrestrial visitors had possessed.

Hours never passed so rapidly as they did that night. Something with-

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in me seemed to hope that the time would not pass, that something would go wrong. It was quite an undertaking, to be sure, but, I argued with myself, nothing would go wrong. It was to be a stupendous adventure, undreamed of, almost unthought of in simplicity of accomplishment.

We were aboard the ship. Everything had been checked and rechecked. There could be no question as to perfect results. Picked men were at the controls aboard ship and at the transmitter stations. Two minutes to go! We looked at one another rather sheepishly. This *was* quite an undertaking, but, before each other we would not admit fear, though each could read it in the others' eyes.

Lele was the exception. Though she had been my wife for seven of the happiest years of my life, she never outgrew her wonderful childlike simplicity and mannerisms which made me love her more than ever. Now she was sitting, all eagerness to be off on this adventure, as if there were nothing but wonders and delights in store for us. Bless her! Compared with her, we were all cowards. She was not even an earthwoman, and she was displaying more courage than any of us on this trip that I had planned.

"Twenty seconds!"

It would soon begin. I know my heart turned over several times when that voice broke the silence which had descended upon us as each, in his mind, made a picture of what he expected to see and find at the end of this journey into space.

"We're off!"

"Oh, Bell!" cried Lele, her eyes wide with the greatest excitement I had ever seen registered. "Just think, in a few days we'll be on Mars! I'll bet the people are funny looking beings with long legs, round stomachs and big, flappy ears like elephants. But they are nice, kindly people."

We all smiled, glad for the break, and we agreed with her. We did not truthfully feel like arguing one way or the other. The feeling of motion was almost identical with that or riding on the electrically-powered trains which, some years before, had possessed as high accelerations as five or six miles per hour per second, though it was seldom used. The feeling was unpleasant, like a constant push holding one's back to a car seat, or, if one were facing backward as Kroelich and Pearson were, a constant tendency to keep one's back from the seat. It induced slight nausea in all of us after some time, but there was not a thing to do about it but to hope the effect would wear off after a time.

"This journey is somewhat of a risk because one station cannot give us a beam for more than a trifle over an hour. We'll have to depend on the rotation of the earth to bring the next one in range. Even if we are deflected from our course by meteors and asteroids, we shall soon be at a point where the cross-section of the cone sent out by the transmitters will allow us quite a bit of latitude without losing our propelling force. We have rockets for such an emergency, but, of course, they are effective only in free space, and we could not use them for deceleration in landing on a planet," I explained, but I did not talk on because, below us, the earth was undergoing a most spectacular transformation.

THE edges were coming up all around us! This phenomenon of apparent transformation from convexity to concavity was uncanny. Sud-

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denly we were aware of a gradual lessening of the backward pressure. We were going out of range of the first transmitter! What if the next one were not in operation? We should be pulled back to earth and dashed to fragments on the ground.

In just a few seconds the uncomfortable feeling had retired in full measure, and I breathed a sigh of relief.

"How far have we gone in that seventy minutes?" I enquired of the man at the board and controls.

"Thirteen thousands miles, sir! Our present velocity is above twenty-one thousand miles an hour!"

Twenty-one thousand miles an hour! That was almost six miles a second. Incredible! I shivered when the meaning of that tremendous velocity dawned upon me as I sat out in space on a mad journey to an unknown planet.

"Rather moving along," commented Pearson. Apparently even his love of adventure had dampened now that we were hurtling along faster than any man had ever traveled, or surely faster than any man had traveled and lived!

The Dean now seemed to be enjoying the trip as much as Lele. At one time, a dying man, we had wondered at his bravery, but his manner this time had not been quite the same. Then he had nothing to lose, but now he was a new man. Apparently he had seen the futility in fear and was beginning to look on this voyage in the light in which the rest of us should have and soon did, because our fears were merely spoiling the greatest adventure ever attempted.

Conversation became more spirited than it had been, as, one after another of the twenty-one transmitters took hold and projected us into space at a constant velocity. The sky which now extended all about us was a wonder to behold. I do not believe I have ever seen so black a black as that velvet sphere. The myriads of stars, augmented by more and more, invisible from the earth due to the diffusion by the air envelope, stood out so far that it seemed one could almost reach out and touch them. The sun, which at first blotted out much of the view, was withdrawing slowly. It could not be looked at directly without tinted glasses being worn for the actinic rays in free space were deadly.

"Too bad we shan't get a close look at some of our other neighbors, Saturn, for instance," said Kroelich. "What a view that will be when we do see it! Say, the calculations did not allow us as much leeway to that moon of ours, as I wish they did. Look at the thing coming up in size!"

"I know we'll come fairly close, closer than any human being so far has, unless our ancient histories are incomplete, but don't worry about it. We won't even feel the effects of its attraction!" I replied, but Kroelich showed alarm from that time on.

"We should cross the point of maximum influence after we are about five hours out," added Pearson after a short mental calculation. "We'll miss the lady Diana by forty thousand miles, but what a sight from this bird's-eye view we have at our command!"

We were in constant communication with the receiving stations behind us on the earth, but the marvels we beheld made us silent with awe rather than talkative. Calloway asked question after question, but I know the answers disappointed him. He finally kept in touch with the man at the transmitter aboard our ship, ig-

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noring us completely after a time. We were content to remain quiet and watch the glories of the sky from our darkened compartment. The moon was truly an awe-inspiring sight as she grew and grew before us. Calloway reported that the station was feeling the sideward drag very perceptibly then. And we still had an hour before the effect would lessen. But still I saw no real reason for worry.

We did sit up and take notice when he reported that the observatory noted that the beam deflection at our position was five hundred miles from the normal. That indicated trouble ahead. The battery of converters was now at full load, attempting to pull the beam back to its normal. The force was becoming more intense, and we still lacked three-quarters of an hour of being in our worst position!

The greatest energy projected was in the direction of the beam, while the force was reduced rapidly as the angle from the transmitter path increased, being quartered at right angles. We had not contemplated any attraction of sufficient magnitude to require much expenditure of power except that required to propel us in a straight line from the earth to Mars.

"No going back now," I said. "It would take seven hours to come to a stop. We must take our only chance."

Lele's brows were puckered a bit at the note of trouble, but, either she did not realize the full truth, or she was extraordinarily brave, for she made no comment except to exclaim at the wonders of the moon's surface as it loomed larger and larger.

"We're in for real trouble!" whispered the Dean as we watched the instrument board. "Calloway reports we are now one thousand miles from the normal path. Ten minutes will tell the story. Now the acceleration toward the moon is noticeable. Feel it?"

We did, and it brought very unpleasant thoughts to our minds. Would we make it after all? I shuddered at the possibilities before us. Death by collision with the earth's satellite! Death on a vast, barren waste, terribly cold in the shadows, terribly hot in the scorching sunlight without diffusion.

"We're in for it, losing all of the time," said Pearson. "We'll never make it! We are goners, sure!"

"Shut up!" said Kroelich. "Don't be a fool. You'll frighten Lele. What must happen will, but, until it does, don't give up!"

IT certainly looked as if we were lost in the next few minutes as we came within the maximum attraction of the moon. Our deviation to her was increasing rapidly. Our acceleration was as great toward the moon as it had been toward Mars, and the vector we were tracing was surely approaching the moon as its destination.

"Calloway on earth has about gone crazy. Listen to him yell," said Kroelich. "Poor fellow, he feels worse than we do."

"Well, why shouldn't he?" I replied. "We'll soon lose all memory of what is about to happen, but he'll carry the thoughts to his grave!"

Now that the time had come, I was surprised at the calmness of everyone of our group, of the crew, who knew the truth now, and especially of myself. I felt no panic. There was no fear in me as I held Lele close.

With tears in her eyes she said, "Bell, if this is the end, I am going happily. I have you, and I have seen

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the moon in full glory, as one destined only to die upon her could see her. It has been worth while!"

There we waited as the space-ship pointed more and more toward the fast-approaching moon. The greatest attraction was present, and we could not withstand the pull of that great body. Inwardly I began feeling a rage after my calmness. What fools we had been to trust the calculations which indicated we would pull past the moon without even noticing her attraction! The generators at the earth's end of our beam were carrying a two hundred and fifty percent load. I could picture the sweltering heat near those units and the seared attendants who were doing their utmost to preserve us from the terrible fate ahead.

The space-ship jerked, but we hardly heeded it. Our minds were already made up for the end. It was the man at the board who still had sense enough left to observe the indicators.

"I don't know if I am wrong or not, but our velocity toward the moon is practically stationary now, sir. It should be increasing with the acceleration!"

The indicator certainly showed that, if it could be depended upon!

"Sir, we are pulling away from the moon. We certainly are!"

Calloway's anxious voice, missing for ten minutes, came back to us. "We've got you again, Bell. In the overlap of the two transmitters you have almost twice the power available as in a single beam. We'll get you back, if we can, before you pass out of the fringe of influence of the transmitter you have been traveling on before this one could cut in to help. You are going to have a rough ride, but it cannot be helped. Hang on!"

Calloway was running the two transmitters at all of the power he could convert to get us out of the moon's influence, after which we once more would have only one transmitter for driving, due to the angular limitations as the earth revolved on its axis. If those ten or fifteen minutes would only be enough! I doubted it, but at least there was a ray of hope now. We clung to it as a drowning man clutches at a straw. We were not beaten after all, though our chances for escape were very slight.

"We might make it, folks." The Dean shook his head as if to make up his mind definitely one way or the other. "I'm going to lie down before I fall down!"

Standing was becoming a difficulty. The acceleration was increasing and the vector was pointing nearer and nearer to our normal path. The indicator crept past eight, past nine and up to ten. After hovering there for awhile, it rose jerkily and hesitatingly to twelve, to fourteen and finally to twenty. Our course vector was crossing the course in a straight line between the earth and Mars! Breathing became a difficulty, and motion exacted a great muscular effort.

"Got to do it!" I heard Calloway shouting. "Got to do it, no matter how much it hurts!"

From the floor I could see by the indicator that he was doing it all right. The acceleration was thirty-five feet per second per second and still slowly mounting. I began to feel oppressively warm, then numb. We were all on the floor because breathing was easier when our bodies were in the line of motion.

How long could Calloway keep it up? I prayed that the time would never come when we should fall back

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on the power of one transmitter station. No sooner had I thought of it than it happened. I watched the acceleration indicator. Back it dropped to thirty, to twenty, back, back! With an effort I pulled myself up high enough to peer out into space. The moon was behind us, all right, but it was so close that it must pull us back with only one transmission beam to propel us! Back the meter dropped to ten, to nine, to eight! Would it never stop? We could once more move about without great discomfort. Our eyes were glued to the indicator. It was still dropping!

"More, more!" I shouted to Calloway.

"Can't, Bell, can't!" was the frenzied reply. "You've got ten times normal power rating now, and this station is a living hell down here. We've done all we can, and this generator may blow any minute! All of the breakers are wired in. Everything is done that can be done—so help me!"

IF eight million horsepower would not pull us out of the moon's attraction, nothing could. The acceleration meter had dropped to a reading of one foot per second per second. We could hardly notice this force. At any moment we would slip past the zero line and be accelerated back to the moon again. This time there could be no help, for it was three quarters of an hour until two generators could combine their fringes to give us the double-powered beam we needed.

Zero acceleration! With horror we saw the needle. We had cheated our fate we thought, but we had merely prolonged our misery by minutes.

"Number five and seven rockets!" I shouted. "Quick! Lie down, everybody. This will jar us a bit."

These were the only rockets located to be of value to us in using them to propel us from the moon. There was no sound in the outer void, but we could see the brilliant flares as the shadows danced on the walls. For two minutes, as the rockets discharged, the indicator climbed slowly to an acceleration of three feet per second per second, but it dropped slowly toward zero once more. We had used our one and last means of passing the critical point where the moon's attraction and our beam's repulsion were equal and opposite.

Zero acceleration again. But the indicator did not change! Our velocity was being maintained at least, though we were not accelerating toward our destination. If we could keep that up, the generator of the beam would eventually accelerate us again as we gained distance from our satellite. If only nothing happened at the power station! A thousand-percent load, even for a few seconds was dangerous to everyone within miles of the transmitter. Yet they were taking this chance for us; they could not fail with such courage, and they did not! Perceptibly only, at first, the pointer hovered above zero. Then slowly, ever so slowly, it rose definitely toward the one mark. It passed this and the two mark.

"We've won, Calloway, old man!" I shouted feebly. "You can cut your power, but, whatever you do, take it slowly. I'll try and maintain one foot per second per second constantly. Cut her down."

With much relief, I knew Calloway cut his power output at the station, as I watched the meter closely as it gained constantly, more rapidly all the time. We had won the closest bat-

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tle I hoped ever to be in, and I knew the rest realized they had experienced the closest escape possible. We had cheated death by the smallest of margins.

When the power delivered over the beam was back to normal, and the moon was noticeably drifting from us, I said, "Believe me, we'll plan our return trip with a little more leeway than this one allowed. The moon will be on the other side of the earth when we hit that spot next time!"

There was not a single voice of disapproval. That point agreed upon, we relaxed once more with a little more assurance of a safe journey thereafter. We again marvelled at the panorama, slowly changing about us as the planets followed their paths, but never losing any of its matchless beauty.

The day came when we must begin to decelerate. The battle with the moon had cost us only a few hours of our trip, so that we were confident that we should not be so very much longer than we had at first planned. Calloway managed the transition nicely, causing little discomfort to us, though we did try a little floating about, retrieving articles which had left their places at zero acceleration as they had twice before.

We had very little trouble with the bits of celestial refuse in outer space, but it was becoming more and more apparent that we were to have some trouble avoiding the larger bodies, some many miles through, which were approaching. Our simple glide was becoming more of a weave as we changed our course for the larger bodies thousands of miles before we reached them, and rayed the smaller ones which came too close. As these space missiles became more numerous, the men at the screen and ray controls were doubled, then tripled. It was not as easy as we had at first thought it would be. We were never in great danger, but the unexpected swervings and bouncings could not go unnoticed even in view of the fact that Mars was becoming a very definite globe with definite markings. Our ride, after a few days, had become more like the beginning in smoothness, and we forgot our rough treatment. The chief engineer reported that our rockets were practically depleted. We did not allow this to concern us much, however, for we were looking at a planet never before seen so close and in such detail by any man from the earth.

GREAT stretches of reddish-yellow covered the surface for the most part. The darker lines and patches ran regularly to junction points as we had seen them on charts of the planet, but we had never seen them in such detail. Wisps of clouds could be detected over these darker patches, but none were evident over the vast expanses of lighter-colored surface. It was becoming apparent that these red patches must be deserts, devoid of vegetation, and, that the darker streaks were irrigation districts where vegetation grew. The clouds over the latter verified our thoughts. Just a matter of two of two days and we should land on this planet, fulfilling a vision which had long been dreamed but never before accomplished. With what we might learn, the earth's civilization might be advanced a million years in one step.

Our pleasant contemplations were suddenly interrupted by the radio operator who reported that Calloway on distant earth was calling.

"The space-ship has again been

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sighted near the earth!" was his anxious message. "It is again approaching directly, this time at a velocity of a million miles per hour. Their objective is obviously the earth. They are traveling toward the beam and should reach it in about twenty minutes! Bad weather, almost universal over the globe, has prevented their discovery before this time."

After many months, that menace again! And here were we, almost at our destination and helpless. Without question, the beam would be stopped again, but, this time, the safety devices would prevent the destruction of the power units. The trip would again be jerky due to sudden cessation and restarting of the conductor beam. We would get enough power to reach Mars safely, for the enemy space-ship would not continue its raying after the beam transmission stopped. Then, before they could ray again, enough energy would reach us to decelerate sufficiently so that, with the help of our few remaining rockets, we probably would not be greatly damaged in making contact with the Martian surface.

"Turn on all beams," I told Calloway. "This space-ship may pick on the wrong ones at first if she does not know just why these beams are being transmitted. Give us about thirty feet per second per second negative acceleration now, and you watch the deceleration if this beam is cut off at any time. This great increase is necessary to reduce our velocity to the correct figure, but we can stand it, we must!"

The enemy space-ship did pick up another beam when all were projected. After its reappearance, it was again rayed. After the third appearance, the space-ship became vexed, and, without warning, changed the power ray to one of utmost destruction, comparing with the most appalling used by Sarians and Poruvians, which we had witnessed in battle years before. Now the space-ship did not attempt to cut the rays of the other beams. She destroyed them one after another. Cold sweat stood out all over me. It was only a matter of minutes until our propelling beam would be swept from us, and we should be dashed to pieces on the planet which we had hoped, after our earliest misgivings, to reach in safety.

Suddenly there was a cessation in the pulling feeling, and we continued on, after we picked ourselves up, only bruised, on to Mars, with nothing to prevent our extinction this time. Our transmitter had been destroyed! Even if some remained, and they attempted to catch us when the earth's rotation permitted this to be done, they would be wiped out too. There was no hope this time. Again all was black despair. We had been so near success and so deserving of it after our struggle with the moon, that we had been nothing but confident of the outcome.

"Nothing to do now but use our rockets to avert direct contact," said Kroelich. "We can miss Mars by using them now, due to the fact that we are still millions of miles away, but we shall eventually be dashed to the surface. It is our only hope if one or more of our transmitters is unharmed on the earth. I know Calloway must have had the presence of mind to shut down those remaining after ours was destroyed, but when he uses them again, if the space-ship remains, they will go too. A lot of fun those invaders must have in their practical jokes! Here we are out in space, all set for a perfect annihilation. Pioneers do not deserve such

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treatment, but I guess they always get it. That is the glory of being a pioneer. At least, our names will be written on golden tablets for coming generations to gape at, and a monument will be erected thousands of feet into the thin Martian atmosphere at the point of our demise. They may even build a stairway to the bottom of the hole we will make, out on one of those desert plains. The Martians will pay good money to see the remains of the first ship from the earth to reach Mars!"

THERE was nothing to do but fire the remaining rockets to change our course to miss the red planet. If we should escape its attraction, which was very unlikely, we should soar out into space and die of starvation and cold in a few weeks. The rockets were fired, and our course deflected sufficiently to miss our intended goal. As we passed over it, the glories of detail were lost upon our numbed minds. Only too soon we should be there ourselves. The Dean half-heartedly calculated our probable flight, first a great ellipse, then a series of contracting spirals until, finally, we should graze the surface and become part of the dust thereon.

Hours passed, and we had begun our backswing. For days we hurtled through space, coming ever closer to Mars and her two moons. Perhaps we would hit one of them and bring the end nearer, but it became evident that we should not. Mars had been our destination from the start of the journey, and it was to be.

No panic this time either, just resignation. We were cut off completely and permanently from the earth as far as we were concerned.

"At this rate," said the Dean after a lengthy calculation, "we have but thirty-six hours to live! So at least we shan't die of starvation. Let us make the best of it! No need to mope about it, for the end is inevitable. For you, I am sorry, most sorry for Lele, but we have had a great experience in the last few years, and no men could have accomplished more for good than we have. I am an old man and know that there is little use in trying to hold off what must be. Life is a precious thing to us as individuals, but, in the scheme of things, it is prolific. Life is everywhere. But our names have been engraved upon the very walls of heaven itself as the first earthmen to conquer millions of miles of space. We have done what we intended, and, Bell, do not blame yourself for having put forth the idea. I should not have missed this for—for life itself! So be it."

"A toast, gentlemen, to the brave ending of a brave band in a brave undertaking!" said Lele.

We drank. I doubt if I tasted what ran down my throat. I knew my throat was extremely dry, my whole body felt dry. I wished I could end the misery then and there. But the Dean had said we must be brave! I would be, for Lele would be, and so would all the rest of them.

The entire crew sat at the long dining table made up of various tables covered with heterogeneous table cloths. No one was at the controls for no one need be. We did not break the solemnity with artificial gayety. The effect would have been ridiculous. The conversation was calm at all times about things on our earth, our home. Now and then one of the crew broke down under the strain, but, for the most part, it appeared as serious as a conference over some problem.

Suddenly the ship gave a tremendous lurch that must have strained

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every girder in her. Tables and men rolled against the wall, and there were shouts of surprise mingled with those of pain as we attempted to regain our feet. A meteor? Perhaps it would be better to end it all suddenly by instant annihilation in the absolute zero of space. But there was no leak anywhere or we would have known it instantly.

A tremendous force was acting upon our space-ship. No one could stand upright. I crawled, as best I could, along the wall. The pressure was so great against the wall that I felt as if I were tearing the very clothes from my body when I moved. What I saw astounded me. The acceleration indicator stood at minus fifty feet per second per second, and it was being maintained there! No sound from the radio transmitter so it could not be an earth beam. And what an unheard of power. Certainly this did not originate on the earth.

I relaxed upon the floor, gasping for breath. The deceleration did not cease. For two hours it continued, but through blurred vision I saw the planet looming larger and larger. Our striking would not leave as large a hole as Kroehlich had thought! I laughed a funny, gurgling laugh.

As suddenly as it had come, the power ceased, and once more we could walk about. Lele had suffered pretty badly under the extreme pressure, but she revived after a short time. Our discussion of the strange force got us nowhere. We had completed another revolution about the red planet, but we were approaching its surface at a tremendous velocity. The reddish waste lands began to show rises and depressions and other slight details. For the most part, erosion had leveled off the landscape until it was very nearly flat.

ANOTHER tremendous shudder! We were in for another siege apparently. This repetition started our trains of thought anew. As well as we could, we tried to discuss this phenomenon. This time I noticed that the vector of the force was moving from the planet. Our orbital velocity was not alone being checked, but our descent as well. As before, after two hours, we were released. A check on our velocity indicated that our speed was only a major fraction of what it had been before. A new hope had sprung up within us.

"Don't you see," the Dean was saying, "each time we pass over that spot on the surface, we are captured by that beam. The Martians have a conductor beam too. They have watched our plight and perhaps had just completed their installation. Fate decrees that this mission has not been in vain. We will land safely!"

If we were to land safely, it was evident that the beam would have to hold us the next time, for, if we passed out of its influence again, the acceleration effects of the planet upon us would bring our space-ship to the surface to be dashed to pieces before we could reach the conductor beam.

"They may be able to do it, but it will be so close that it won't be funny!" said Pearson.

Kroehlich looked up from his figures. "It does not allow us a hair's breadth for error, either!"

"We must hope," said Lele in a whisper. She was apparently very ill from the great stresses to which we were being subjected.

I hoped fervently that the next attempt, if successful, would not take her life. We were placing her in the best possible position before the final struggle.

We were not many hundreds of

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miles up, as we approached the zone of the beam, and our descent was more rapid than our planet-circling velocity! Again that titanic power took hold. What a generator battery they must have had behind that beam! The velocity indicator was dropping slowly but surely as the ship seemed almost to groan in the grip of the giant. We were nearing the end of the zone of influence. No, we could not hope to make it, and we had not a single rocket to aid us! Now came a tremor through the ship. My ears sang, my head was swimming and slowly consciousness left me.

Someone was shouting when first I became aware of my surroundings. What? Could we be standing still? No, there was a feeling of lightness in my body, but it was that imagined in a descending elevator. I looked out of the port. We were no longer circling Mars. We were being lowered gradually to a definite spot in one of the centers of the canal networks. We had been saved!

But Lele looked dead. No breathing was perceptible, and, in my sudden frenzy, I forgot all about our safety. I saw dancing lights, heard myself shouting, felt many hands holding me, and then all became blank.

My next sensation was that of a strong mental urge, as I regained consciousness, a peculiar urge which seemed to be shaping my mind, irresistibly. Next, I saw a picture of Lele before me. She was stretched out on a cot in a strange room, but she was not dead! There was a faint smile on her lips. Then I heard familiar voices. Pearson, Krochlich and the Dean were all with me. I made an effort to open my eyes in which I succeeded, but the apparition which appeared before them made me close them instantly. What demon of hell had I seen?

"It is all right, Bell," I heard Dean Harvey say. "You are on Mars, and you will find things a bit different. You are bound to expect that!"

I opened my eyes again and studied what I saw before me very closely. I must be looking at a man, a very, very old man. A man so old that his age could not even be approximated! Even his bald pate was one mass of wrinkles. He was bending over me, clad only in a white wrap which was merely hanging on him. He was thin, very thin, but, I decided then he must be a man.

THE most startling thing about him, and the reason I had so suddenly closed my eyes the first time I saw them, were his eyes. Such strange eyes. As I studied them I realized there was nothing to fear. I felt a peaceful wave sweeping over me. The eyes were large really, and not only because they were accentuated by the drawn features. Their color was indefinite, but the striking thing about them was that you could look for untold distances into them, into something partially veiled, a misty, unknown something. Again the picture of Lele on the cot came before my mind, seemingly forcibly, blotting out all other things and thoughts. The picture again faded as the man turned his head to the Dean.

"Bell," said the Dean as he stood beside my cot and put his hand on my shoulder gently, "this is a strange world, and this man is trying, in his way, to tell you something. It is your first experience in thought transmission. Open your mind and do not resist the train of thoughts, which will come before your mind's eye. You can talk to him too by merely thinking your questions. He cannot read your

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mind unless you relax control voluntarily."

I looked into those mysterious eyes and passively awaited the thoughts which would make up his part of our conversation. He took the adventure back to the point where I had found Lele, apparently dead from the violent forces to which we had been exposed. There I was beside her. I began raving. I had gone stark mad. Pearson, Kroehlich and three members of the crew had all they could do to hold me in my frenzy. They managed to get me to another room and keep me down.

The ship was swiftly nearing ground level where throngs awaited our arrival at the transmitter station. We reached the landing platform. Carefully Lele was brought out and carried into the building. I was brought out fighting furiously. Lele had not been too far gone to bring back to life, and the utmost was being done to bring her back. I was being strapped down and given injections to quiet my shattered nerves and warped mind.

But, I interrupted, I had seen Lele with a smile upon her lips, and she looked almost recovered. The answer flashed back to me was that I had been out of my mind for three whole weeks! The picture faded. I was bewildered, yet it must all be true. The surroundings were certainly strange. The old man arose and slowly walked from the chamber.

"Wait until we tell you all about Mars!" exclaimed Pearson. "You don't know a thing as yet. We certainly worried about you a-plenty, but that old man pulled your mind into shape again in spite of yourself! You certainly were gone when we brought you in here."

From the three of them I learned the history of the dying red planet. The first seed of life which fell to the surface came from a passing comet's tail. In fact, millions of these microscopic things fell all about the planets of our system. Mars was then cool enough to provide a breeding ground for them in the steaming oceans which once covered almost the entire surface. They grew and grew and grew. Hundreds of thousands of years passed. The seas were full of these little things, single cells. They did not move, but drifted with the currents. The oceans were becoming green and slimy with them. Once in a great while one differed a bit from another, but, as a whole, they were very much the same. Millions of years passed, and some had become capable of slight movement. As time passed, some became distorted in shape. They were two-celled instead of one-celled.

Down the long line of history evolution was taking place. The earth was cool now, and some of these cells, borne by light pressure, reached the earth and multiplied in the seas. On Mars development had progressed and soon there would not be many of the original sensitive cells. Bigger things were using them as food, things that had developed from them!

From all of this came the plants, the animals, and, finally, on Mars, at least, man, the highest type of animal which could be developed from the seed sown from the comet's tail so many ages back. Unquestionably the various seeds in the universe would lead to other highest types, but they had not been sown within our system. Our evolution had been the same as that of Mars because conditions had also been the same, only Mars was a billion years advanced from us. Strangely enough, the population was

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only a few million, and this number was decreasing slowly through the ages. Millions of years before, astronomers had sighted a large body which, they predicted, would pass altogether too near Mars for comfort, and finally this body would plunge into the sun and be consumed within it. This body would tear about half of the atmosphere from the planet.

SINCE the prediction was years in advance of the actual occurrence, there was time in which to do something to prevent the destruction of the life on the surface. Vast areas were covered, hermetically sealed from the outside air. Endless caverns were dug beneath the surface. Everything was done which could be done. There were skeptics, of course. There was laughter, but panic resulted when the heavenly visitor did become visible. Still human nature discounted the seriousness of this new bright body in the night sky. It was too small to do any damage, and with that, the panic subsided.

But the body grew constantly in size. It became as large as the sun in appearance. Thousands died from the tidal waves, the hurricanes, the vast upheavals caused by internal strains. It was a wonder that anything lived when that body passed within a few hundred thousand miles of Mars. It tore from her half her life-supporting atmosphere and ended by plunging into the sun. This rocked the very solar system to its edges and a piece of the sun was hurled off and established an orbit about the earth. The terrific disturbances which occurred on the earth as the new balance was being acquired were visible to the Martians scores of millions of miles away. The few thousands left living on Mars managed to exist. Gradually they enlarged their artificial homes and grew to be a mighty race once more.

As time went on, their bodies would not need to undergo changes in form to exist as the air envelope would become more and more tenuous as millions upon millions of years passed. There would be no more slow adaptation necessary. They could live even after the planet was cold and barren of air as the moon is now. They could live as long as the sun shone; even longer than that, perhaps. They were a haughty and a mighty race!

There was sufficient air remaining after the cataclysm for some vegetation to grow, and promising results were obtained by pumping carbon dioxide out upon the planet's surface. This not only helped plant growth, but formed a fair insulating as well as diffusing medium. But aging of the planet did not have only a few results. Water was getting scarce. It was chemically manufactured, at a tremendous cost. Synthetic food was tried, since animals had become almost extinct, and now vegetable life was too costly to eat. This new food did not give the hoped for results.

As a last resort, the birth rate was cut. The population, billions before the change and hundreds of millions after it, would be reduced gradually until the balance was met. This was about the time that things were crawling from the seas out upon the land on the nearest planet, the earth. The span of life had been prolonged, and, with the decreased population, it was a simple matter to delve more deeply into the mysteries of the universe. Atomic power was developed and served to perform all of the work necessary. This led directly to abstract thinking. The time came when the solar system passed through the most gigantic comet the galaxy had ever known.

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Very strange things happened then. It was found that mind, pure mind, existed in the tenuous tail of this monstrous comet. The influence of this strange phenomenon could be felt by everyone. It stimulated thinking. It soothed. It mended. Years went by and the comet, still a gorgeous sight in the heavens, had hurtled away from the sun, but its influence had remained with the Martians. In the millions of years which followed, mind was uppermost, not material things. By mind, matter could be controlled. Thought-transfer became the common means of expression. It was complete in detail, and lies were impossible because detail must be lacking in an untruth. It was only a matter of establishing a conducting path between minds for the transfer of thought.

Then another strange thing came to pass. Logic had been a means of foretelling a good many happenings. Some people were going from logic and foretelling events which happened and yet were not logical. There seemed to be an indefinite something which gave them this uncanny power. They had thought of building space-ships and migrating to the earth which was now almost identical with what Mars had been eons before. But this mysterious something warned them that they should remain and build up their empire of thought.

They had known of the coming visit of earthmen to the planet, though they knew not when or how. They waited. They knew ages before our time that marauders of space were on their way to capture a new world for themselves. They knew the moment our beam struck Mars that they too must build such a transmitter. The reason was not quite clear, but the impressions were definite that it must be done, and it was done. Had it not been for this uncanny power of prognostication, we should have been angels long before then.

"Wait, wait!" I transferred to him. "Three of you can tell me more than I can absorb at one time. You'll get me down again with any more of this. I must see Lele!"

I WAS a bit shaky, but I could walk by myself though I almost fell at first due to the decreased gravitational force. I had to take my time to become accustomed to the new condition. Lele was indeed alive. Her smile was not even changed, her love for me was not changed, she was not changed. I was wrong in the last statement in one respect. Though we spoke of it only once and then only in a few words, she carried always, less and less as time went on, of course, the faint shadow of having looked into the eyes of death. I knew what it must mean to have died and lived again, and I asked for no explanation. I wanted none.

We spent weeks looking over the marvels that this ancient world held. We often donned pressure suits and walked through the growths outside the covered city. Now and then we saw a peculiar animal, always small, which had survived the first loss of air and had adapted itself to the ensuing slow loss of air and heat from Mars. These animals were rare. The vegetation was most peculiar and pale looking. What inherent vitality it must have to live under such adverse conditions.

There was really no form of government for there was no one to be governed. Selection had weeded out the undesirables ages before. To be sure, while I had first seen a man three hundred years of age, there were babies, boys and girls, and matured people as well. In fact, Pearson

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had found it out very definitely. We were guests at the home of So-dek who had a radiant daughter about twenty-two years of age, and there had been a mutual attraction between them. I at last had a chance to get even with Pearson for his teasing me about my official title. I reminded him on several occasions that he had fallen in love with a woman old enough to be his mother. This was because a Martian year had nearly 687 days in it (687.71 days), the days being very nearly the length of our own earth days, or about 41 minutes longer. He became so angry at times, that, though his mouth moved, no coherent sounds issued from it. It became obvious, if we ever did return to earth with him, that Vola would return with us. There was no need to attempt separating them.

We had been informed that the space ship which had been attending the earth ever since our arrival on Mars, had again gone out into space. I knew that in two months, by the superhuman efforts which would be made on the new beam transmitters, barring the return of the space ship, we could hope to return to the earth. We had established communications with Calloway again for a few hours a day, at least, over the Martian beam. The protective measures were rapidly assuming definite shape, and, if the space ship did not return to earth before we did, we could surround the earth in a pretty fair coat of electronic energy armor!

My curiosity regarding the mental attainments of our hosts never could be satisfied. I tried time and time again to receive the picture of this mysterious guiding something. All I got was something nebulous. The impressions were always of unthinkable vastness, a vastness which seemed to dwarf the all of creation. Pearson received the impression of a great maze of something, and the others did no better than we did. Once or twice before, a thought had missed me in talking to these strange men. The gap seemed rather a shock after an orderly train of mental pictures. Usually the Martians would approach the same idea from a different angle, and I could then understand them.

I wanted to know more about these marauders of space who had caused us such a goodly measure of grief and time and material. Their physical appearance was completely lost on me because I had nothing by which to judge it. My ideas were only connected with things I had seen or had seen in pictures. There was always a yardstick handy for comparison. But these creatures in the space ship left a blank. The Martians knew what they looked like, but they could not even draw a picture of them, which we could understand. Little had we dreamed that such a difference could exist! This was one of the reasons for thought transference, which to them, had no limitations in amount or degree. Apparently we had not developed sufficient adeptness and never should.

WE did learn that they had migrated from space so remote that when they left on their journey our galaxy was but in the process of formation. They had been driven out by superior beings of much higher intellect, who came marauding from elsewhere in space.

Altogether, the Martians knew of several hundred different types of sentient beings, and not a single type could be described to us. We asked as to the atmosphere and other physical characteristics of the myriads of

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planets, and found they varied greatly. In fact, the space-ship had picked the earth as the first world which reproduced home planet's conditions, of all they had explored in endless light-years of space-navigation. To our own misfortune, they had apparently decided to take possession of our earth for their own. They had looked over Mars too, but it was too far gone to be to their satisfaction. These beings were naturally tired of living from space radiations and tired of traveling for countless ages to find another suitable home. Only in our solar system had they found a second to their own. This fact staggered us, for we could not even conceive of the number of worlds these beings and their ancestors had explored since the formation of our galaxy. The thoughts made no impression at all.

At last the long-awaited day of our departure for the earth had come. Vola was to accompany us and become the mate of the beaming Pearson. Weddings were not upon Mars, but Pearson insisted that the formality be carried out when we reached the earth. Lele and Vola had become the very best of friends. Here we had three worlds represented on one space-ship! The rocket tubes had been replenished. The ray projectors were checked along with the screens. We were going to travel homeward in less time than we had come. There was no guessing when the enemy space-ship would come back.

As a last bit of advice, a couple of the sages "told" us most cheerful news, that the ship had signalled a vast armada, that a world suitable to them had been found, and this fleet was on its way, traveling at a tremendous velocity. Our hearts sank. The men had assured us that we should reach the earth before our enemies. So it was written to them in their minds by this unknown power. The earth would survive, but a great change would take place, and, after this one visit, a wall would come up between the two planets, a wall insurmountable for countless ages. That was as much as they could tell us. We thanked them, though we had no need to tell, since they could read the thoughts in our minds as we spoke.

Calloway had made contact with Mars and we were off! Ten feet per second acceleration this time. It was a bit more uncomfortable, but the girls seemed none the worse for it, so we left it at that figure. We were on our way home, racing with a fleet which meant to capture our earth from us. We had a chance now that we were prepared for them. All the way back we spoke of little else until Lele and Vola left us to our plans and spent most of their time together, Lele painting a glorious picture of the world to which we were going. I wondered how changed it would be. I could picture what it probably looked like then. Power stations everywhere for the ray screen. Beautiful forests demolished to install great destructive ray projectors. Everything torn up to defend the earth from her space enemies. What was the use of saving a hulk which no longer had anything of beauty left on it, save for the people? Yes, we must save the billions who needed us. If we won the battle, the forests could be replanted and the landscape again made pleasing to the eye.

When we were only three hours from the earth, the great fleet was sighted bearing down with inconceivable velocity upon the apparently defenseless earth. I could see now why the first ship had not destroyed us.

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She would eliminate the intelligent beings without destroying the surface. Perhaps, under that mask of cruelty, forced on these creatures by eons of wandering, they had love for beautiful things. A fight was inevitable since they wanted what we wanted, one and the same thing, and we were in possession of it and always had been.

We landed on the earth just as the protective screen was thrown about the globe. The armada was the most appalling thing I had ever seen. Ten thousand engines of destruction were gathering to take the earth! They undoubtedly expected to land without any opposition and perhaps kill us off with poison gas or something of that sort. I do not believe they were prepared for what was to happen.

THEY were slowing down, visible to the unaided human eye as tiny beads out in the moonlight. As hours passed, they drew ever nearer, just cruising to prevent the air friction from burning them into ashes. They kept coming on, expecting to make an uncontested landing no doubt. When only a few miles out, one of the ships apparently sent out a weak ray as a feeler. The invisible screen showed a bright spot. They had learned that we were ready for them! How ready, we did not know, for ten thousand spaceships drawing their power from the endless radiations of space gave us the most formidable enemy I could imagine. They had gone light-years upon light-years and yet had come through unscathed. Suddenly I thought of how puny our resistance would be to such a superior enemy. However, the earth was our earth, and, no matter how poor a show we would put on, we would do our best. Millions of men were at their stations. We were ready. Hardly a breath could be heard in those endless minutes before the display began. Several more feelers were sent out by ships at different points and, each time, a glow showed them we had an electronic screen without a break, fed by units capable of delivering quintillions of horsepower to it.

Why not start the battle ourselves? It was possible that if we caught them off-guard, we could get in some destruction before they started their hammering. Accordingly, orders were instantly relayed to all ray guns in range. Four of the foremost ships, giants as they were, were suddenly propelled toward the earth by powerful attractor beams and then squeezed by a repellor beam with the former still acting. Under this enormous compression, these mighty ships turned incandescent and were suddenly shot out into space with a terrible scream of protesting air as the attractor beam was cut off. We had done a good job that time, but the other spaceships opened up on us the moment the results had been interpreted, which was not more than a few seconds at the most.

The terrific onslaught of beams from the invaders threw up the whitest sheet of flame from our screen that I had ever witnessed. It seemed that the screen could never hold, but it did. Special destructive rays were added to the attackers' first rays. Now the screen showed beautiful flashes of color, if they could be called such, with balls of energy shooting off miles into the atmosphere. The odor of ozone was almost overpowering and would soon burn our lungs if we had not put on our filter masks.

The ships were spreading out, seeking a point of vantage, some weak link in our screen, but there was none.

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The scattering was to our advantage for several reasons. First, it was less dangerous to have the screen attacked at many points rather than a single concentrated point of mass attack, and second, we could not use our own rays effectively. The terrific radiations had made vision through them an impossibility.

The battle had begun in earnest. How surprised the invaders must have been to find that not a spot on the globe was vulnerable! Now and then an enemy screen was opened for a split second. This was long enough to send that ship off into space, an unrecognizable hulk with molten metal dripping from it and gaping holes in its sides. The pyrotecnic display exceeded by far the magnitude of that when the Sarians attacked Poru. There we had witnessed the dissipation of billions of kilowatts, but here these figures were dwarfed almost to insignificance. The night was brighter than day. In fact, we were unaware of daybreak when it did arrive. I do not doubt that the spectacle was visible to our friends the Martians, scores of millions of miles away.

At times our screen was hard pressed, but we managed to concentrate enough energy at the danger points to prevent a break. One such break would mean our end for an inconceivable wave of destruction would wither us into gases in a fraction of a second.

Quite suddenly the battle ceased as the enemy ships withdrew. We awaited their return with less fear than we had their first attack. Apparently we could hold our own against them. Perhaps the Martians had been right in their forecasts!

There was no more attacking that day, but the ships remained out in space, in formation, as if they were in conference. Nor was there any change the next day. The ships remained stationary day after day, never sending out a ray! Our screen was still up, but it was unnecessary. We lowered its intensity, keeping a very close watch for a rush attack, but we did not dare cut it off completely, for fear they were merely attempting to trick us into such an act.

Carter wants to see us immediately! reported Calloway. "He has some very strange news for us, he says."

Carter, the astronomer, burst into our master control room. He did have news that stunned us. Unbelievable news we were positively certain. The space fleet, by its combined power, had begun to move the earth from its orbit. We could see nothing to be gained by it. At least we did not for weeks to come.

WE immediately began our offensive warfare anew and hurled the mighty destructive rays upon the armada. Their screens flashed brilliantly and great flames and coruscations flared in many colors. This did not last for long, however. They needed all of their energy for the work at hand, and withdrew a sufficient distance to make our rays totally ineffective, a matter of a hundred thousand miles, and there they remained, pushing the earth farther from its orbit every day!

"Evidently they intend to freeze us off the earth and then drag the earth back to its place!" said the Dean. "I never thought it could be done, but those giants are doing it, and they have all of the energy they need to carry it out."

So that was it! Months passed, and still we moved farther from the sun. What an undertaking was theirs! It would save demolishing the earth,

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which they certainly could have done, but did not wish to do, since so long a search had been necessary to find it. And we had thought we were holding our own against them with our screen, mighty to us, but hardly any resistance to them. They knew breaking it would deface a large area of the planet they so desired for their own home. What puny defenses we had against them actually! But still we considered ourselves fortunate in one thing. As long as the earth was not destroyed outright, we had a chance. We could convert many of our atomic generators into heating units to warm the earth's surface. This would help for a long period of time. This work started immediately when we realized the invaders meant to carry out the plan they had begun. Perhaps they would give up the project when they realized how stubborn we were. We could only hope so.

Years had passed! The earth was a strange one now. The ships were still a hundred thousand miles away, but they were doing the job they had begun. Every now and then one of them would come in closer to test our screen, and, finding it still up, would join the other ships. We were supplying a tremendous amount of heat to the rapidly cooling earth's surface. The sun was now so far distant that the light at midday was less intense than the light of the full moon had been originally. We had come to our last days! Every day the temperature was dropping. We could not seal the population underground for then we could not have operated our screen or our offensive weapons. The mean temperature was 150 degrees below zero! We had used all of the atomic converters we dared to for heating purposes. The oceans were freezing over, and the Great Lakes were solidifying to their very bottoms! Before very long we should fall an easy prey to the space-vandals, and the earth would be pushed back to the warmth of the sun and rewarmed to its original temperature. After the ages the invaders had spent in search, a few years meant nothing to them, once they had found a new home for themselves.

"We are approaching some very peculiar space conditions," said the Dean one day. We hardly heard him. "I have never heard of such a combination of static and magnetic fields. Of course, we had no way of finding such a spot from the earth's original position. Our instruments are doing all sorts of peculiar tricks! Too bad it is unnecessary to do any investigation. Our enemies will have us beaten in a very few days. In fact, if they attacked now, I think they could easily overpower us."

"I know they could," I replied grimly. "Our screens are down! The scout ship is due almost any hour now."

"Scouts coming in again!" came the call from the observatory.

I jumped to my feet, calling Lele and Vola. "The end has come!" I shouted. "We have faced death many times before and laughed at it. Let us laugh at it again!"

We did laugh! The scouts undoubtedly had discovered the ion screen lacking for they were coming in fast. They were landing!

JUST as they touched the surface of the earth, something peculiar was happening. I had a sensation of a tremendous tautness as of a stretched steel string about to snap.

Everything was becoming wavery and indefinite before my eyes. The earth itself seemed to be trembling! The others noticed these strange things too, so it was no figment of my

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imagination. There was a prolonged period of dreadful nausea, of a head-splitting pain and then a definite bump.

From outside a brilliant light, like sunlight, was shining through the heavily frosted windows. What manner of power were the invaders using upon us? The Dean let out a shout and ran to one of the windows, smashing it wide open with a stool. It was a brilliant light. We all ran to the window and peered outside. There was a sun in the sky, a big, white sun, bigger to us than our own ever had been! What had happened?

The Dean was running to the controls. He was shouting, "I want just two shots at them!"

He manned a giant power ray control and trained it carefully. The two space-ships, as bewildered as we were apparently, remained before us not a thousand yards away! They were perfect targets.

"Take it easy, Dean, or you'll blast us to kingdom come with that toy cannon you are handling. They cannot get away now!"

The Dean did take it easy and slowly reduced the two space-ships to molten metal. That hot blast felt good through the terribly cold air about us. I felt that we had ended our terrible struggle against an invincible enemy. We searched the heavens for the rest of the fleet, but no observatory could find a single trace of them! That night, we had the greatest surprise of our lives. The Dean told us he had something of a surprise in store for us, but we never even dreamed then what we knew.

"Let's all have dinner below," he suggested, trying to appear calm, "and we'll all come up after dark for the treat!"

"But, Dean!" we all protested. "How did we get back to our sun in such a hurry and with so few ill effects?"

"Who said anything about getting back?" he chuckled. "No more questions until tonight! I think I can tell you all about it then."

The dinner, in this mind-shattered world of ours, was the most joyful thing I can remember. The world was enjoying the greatest emancipation which had ever taken place!

"This dodging death business is getting to be a habit, isn't it, Bell?" smiled Pearson.

"No holding hands under the table!" Kroelich warned him.

Vola blushed. "Did not my people tell you of this?" she queried in her delightful accent.

She seldom used her powers of thought transference now. She said that Pearson could say much more wonderful things than he could picture, and that made transfer unnecessary. Also, because they were invariably exaggerations, so much detail was lacking, that it was not any fun at all.

"Well," hesitated the Dean as we were all squirming in our seats waiting to go above and look at what he had to show us, "I'll just bet Carter will wring my neck for disconnecting him from this building. I expect he'll be over any moment, and I must beat him to it!" I had never heard him use so much slang before!

"What do you mean?" I asked.

"Come on, folks, I'll show you!" and we hastily followed the old man up the stairway.

It was very dark outside, but we were accustomed to it, because we had lost our moon years before, when we were first displaced from our orbit.

"Go to the windows and look outside!"

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I know I looked six different times if I looked once, before I could interpret the sight in the heavens. Not a star or planet was familiar, not a constellation the same! There were gasps of awe and wonder from every one of us. Even the Dean was taken aback by what he saw.

CARTER and his staff came running shortly after our first wonderment. It was up to the Dean to do some pretty fancy explaining. He was fairly dancing up and down in his eagerness to tell us just what had happened, for none of us had guessed the truth.

"Ladies and gentlemen," he began.

"Get to the point!" shouted Pearson eagerly, and he was rewarded by a very good imitation of a scowl.

"As I was saying," the Dean continued, "Our troubles may be said to be over, so far as invaders from space are concerned, at least those which have been molesting us! We not only are in a new world, we are in a new dimension!"

In the hush that followed the pause after that statement, I could hear my own heart beating.

"If we are not, where are we? The fleet of space-ships has vanished. The two which were upon the earth's surface were destroyed. This is not our own sun, as Carter will tell you from his hurried observations, and too, such a trip in so short an interval of time would have shaken the earth into its component molecules, so to speak! This sun we have now may be close to our former sun or it may be so far distant that even infinity becomes insignificant. How can one compare distances between dimensions? I knew we were approaching a disturbance in the normal fields of space, but I did not dream that, what has happened now, would happen! That whorl in space may have disappeared entirely from the spot we felt it, or it may have been transposed to still another dimension. Such points of instability are not so very rare in space, considered as a whole, but the one which grasped the earth and hurled it into another dimension was unusually large. From one point of view, space is the standard, while planetary bodies are merely disturbances in space, just accidents, so to speak!

"From a mathematical standpoint, there is no end to the number of dimensions. We may find, to get back to our own case, that the climate will become tropical after the earth has assumed its balance in the new arrangement, but I much prefer being warm to being as cold as we have been the past year! Folks, there is a wall between us and Mars-which may never be surmounted, but we are entering a new era of happiness, and I, for one, will have nothing more to do with any plans for space travel!" With this parting remark he looked quizzically at me.

Though he was joking, I knew, it really had all been my fault. But the outlook at that moment, as we turned our eyes heavenward and beheld a black velvet sky, diamond sprinkled as we had never seen it before, told me that it had been worth all of the terror and suffering through which we had gone. I had not thought to remind the Dean that we should have fallen easy prey to the vandals if things had not gone just exactly as they had. I did not care then, for my Lele was safe once more, and our fears would soon pass with the dawning of the new day. The raw wounds on the earths surface would yield readily to the billions of hands which would begin the mending. Our task

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The Battery of Hate

By JOHN W. CAMPBELL, JR.

We can only publish a limited number of stories and that implies a limited number of authors. But we believe we share in our readers' appreciation when we give them a story by a favorite writer. Mr. Campbell is certainly very highly enjoyed in his work. In this impressive narration he finds plenty of action within terrestrial boundaries.

Illustrated by MOREY

CHAPTER I

BRUCE KENNEDY looked delightedly at the ampere-hour-meter on the laboratory bench, at the voltmeter, and finally at the ammeter. Then he drew out the notebook from the left hand desk drawer and carefully wrote in the new entries.

"Wednesday, May 28, 1938, nine-thirty A. M. Ampere-hours, five thousand, six hundred seventy-two; watt-hours, twenty-three thousand, eight hundred twenty-two; volts, four-point-two; amperes, eighty-five. Sweet spirits of nitre, isn't she a brute for work!" He looked happily at the squat, black case on the floor, two feet long, eighteen inches wide, and two feet high. A small, humped projection at one end seemed the source of a faint whine that filled the cellar-laboratory. A mass of heavy leads ran from two thick copper terminals at the top of the black case, up to the table which served as a laboratory bench. Over on one side of the room, where the angle of the concrete cellar wall joined the wall-board, a pile of unused apparatus of various sorts was heaped in disarray. Inductances, voltmeters, heavy resistance coils, all the apparatus of an experimenter in electro-physics. On the concrete wall sections of shelves had been placed, holding rows of various chemicals; in a rack on the floor below the window that let a patch of bright golden sunshine on the floor, hung a dozen curious rectangles of a black, lustrous material. They were just the shape of the end of the black case on the floor, plates for the battery evidently, black, lustrous plates, soft black graphite.

To one side of the door through the wall-board was a frame of pipes, and, attached to it by porcelain insulators was a network of wires, that resembled a gigantic electric toaster. A plate of zinc hung behind it, evidently protecting from the heat the more or less combustible wall-board, which had, nevertheless, been scorched slightly.

The room was terrifically, uncomfortably hot, though both door and window were opened, for it was a warm May day, and the huge heater certainly did nothing to alleviate the temperature.

Kennedy wiped the perspiration from his forehead, happily however, and smiled down at his battery.

"The fuel battery—the ideal source of power! Electricity directly from coal—or graphite. Electricity produced so cheaply nothing can compete! Electric automobiles ten times more powerful and a hundred times simpler than the best today—electric airplanes, noiseless and unfailing, because an electric motor has just

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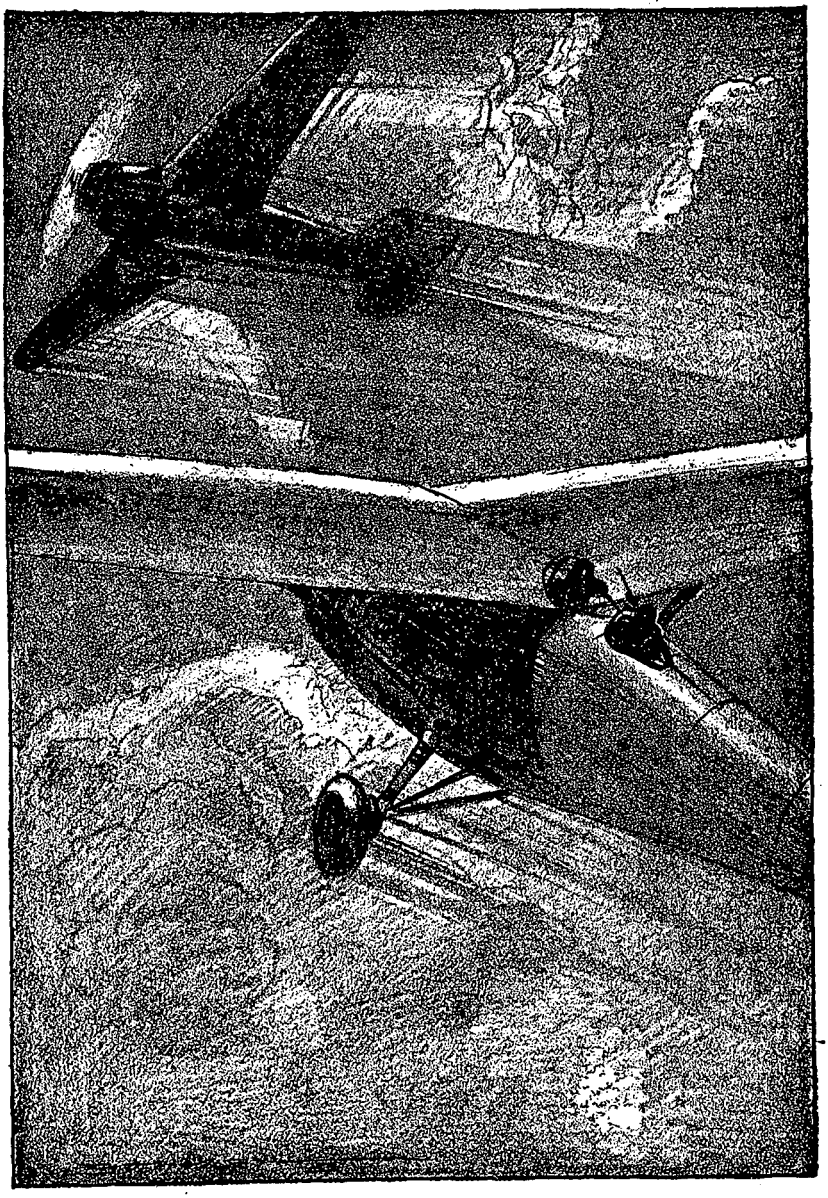

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two bearings and a magnetic field. These batteries won't fail—they can't.

"Lord, the world will be a better place, I guess." He smiled, and stretched himself ecstatically. Some men get more pleasure out of proving the world isn't a bad place, and making their fellows like it better, than from cornering the means to bring what pleasures the world already has to themselves. Bruce Kennedy was one of the first kind. He smiled whimsically at his "toaster" now. "You were all right when I started these experiments last January, but May in New Jersey, and you don't get along. Guess it's time to test those batteries on a refrigerating machine." He stopped, as still another thought struck him. Success was here and the thousand and one tiny, but irritating problems were ironed out, and now the great problem of its use came before him. "Another thing people will have—home cooling will be worthwhile when electric power comes at 'ten dollars a ton!'"

Bruce Kennedy saw the good his invention of the fuel battery would bring the world. A plate of graphite, cheaper and more plentiful than coal, down there in the Archiazoic Period, oxygen from the air, a plate of copper, plated with a thin layer of gold merely to collect current, and a cheaply made solution. Power. Power as he said, at "ten dollars a ton," for the air was free, the graphite alone had to be renewed. The little whining motor, run by the battery itself, served to force the bubbles of air through the solution, to keep it saturated with oxygen.

So Bruce Kennedy blithely set about patenting the great invention, and making himself an electric automobile to be driven by these super-batteries. Had someone pointed out to him the terrible path of hate and bloodshed that lay ahead of that squat, rounded block of power on his cellar floor, and ahead of him, he would not have believed it, for he was young enough to think that men worked for the good of men, as he himself did.

CHAPTER II

MARCUS CHARLES GARDNER, large, very friendly, and popularly known as M. Chas. Gardner, the big power of finance, was looking in some surprise at his secretary.

"What? Who's this wants in? What's he got that's so important and confidential, he can't tell you?"

"I don't know, for of course he didn't say, Mr. Gardner, but he's one of your patent examiners. It might well be important."

"Oh, well. He might have waited till later in the morning anyway. Everybody knows I hate to do or listen to anything important before lunch. Send him in, it probably isn't much."

A small, shrewd looking man came in. His clothes were very neat, and very somber. He looked like a successful lawyer, and was one, a patent lawyer.

"Mr. Gardner?"

"Yes," replied the magnate.

"I'm Peasley Jamison, as you have seen, and I have some news I am sure you will want to hear. Perhaps I should not be certain, perhaps you will certainly NOT want to hear it. At any rate—" He smiled at the bigger man ironically, "there's a new invention. I've been watching for it for the last twenty years, hoping I'd get hold of it. Hardwell and Thomas got it, new firm, not big at all, but they tied it up beautifully. Very skillfully drawn patent. Very pretty work."

"I," said M. Chas. Gardner angrily, "don't give a damn how beautiful it is WHAT is it."

Still the lawyer did not seem content to disclose his mystery. "I believe you have control of North American Super-

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power? And proxy-control of most of the oil fields of the country?"

"Yes, what of it?" Gardner was beginning to be wearied.

"If you can, sell out, and do it QUICKLY," snapped the little man. Gardner suddenly looked very much more alive.

"Eh, what? What in hell is this invention?"

"You wouldn't know if I told you. It's called a fuel battery, invented by a young man by the name of Bruce Hollings Kennedy. It's a device that can produce power directly from graphite, and it gives it as electricity, the most adaptable of all powers."

"Well, why not buy it?" snapped Gardner.

"Because, my dear man, you haven't money enough to pay adequately for it," smiled the little lawyer.

Gardner looked startled. That was the first time, in some twenty years, any one had told him he hadn't money enough to buy what he wanted. "What? How—Why I'm worth at least a billion."

"Could you get that billion in cash? No, you could not. Neither could you buy that invention. Even if you could, what would you use it for?"

"Why not in power plants, which is the natural answer. Tear out the boilers and generators?"

"Because it generates *direct* current, which can't be shipped along a line readily, because there won't be any power plants when any man can make his own, as he now owns his own cellar furnace, and lastly because that is only one of the very minor possibilities. Do you know what's going to happen to the oil companies? There won't be one where there are hundreds now. There aren't going to be any gasoline burning, oil wasting, smelly, greasy, troublesome gasoline automobiles any more. They'll be electric, and a gasoline motor uses two quarts of oil for every drop an electric motor needs on its two bearings. Gasoline is going to be so cheap they'll pay to have it carted away, and save the insurance."

GARDNER laughed. "I hope the rest of your predictions are as empty. I've seen electric automobiles and their batteries. Now and then you can see one having a furious race with some spavined truck-horse."

Jamison's tight-lipped smile returned. "Did you ever see a hundred-and-fifty-horsepower electric car? I did, I went to Florida to see it. I was one of the few who saw it, and knew what it was. Kennedy built one. He went one hundred and seventy-five miles an hour. He said later he got scared, and had to stop."

"One hundred and fifty won't do that," said Gardner keenly.

"One hundred and fifty gasoline won't," Jamison acquiesced, "but one hundred and fifty electric is something different. You've seen electric trucks haven't you? Some make a good twenty-five miles an hour—with two horsepower.

"A gasoline engine is in a constant state of explosion, which means it wastes ninety-nine per cent of its power on noise, heat, friction, and waste motion. An electric motor has two bearings, no explosions, no noise, no waste motion, and almost no heat."

"You mean the automobile is doomed?"

"I said nothing of the sort. It's going to have a new lease on life, but the gasoline car is going out the way wooden battleships did when the *Monitor* and the *Merrimac* called it a draw. Battleships didn't go out, but wooden ones did.

"Gasoline is out, oil isn't needed, power stations won't be wanted, how about iron and steel?"

"Still safe—except that new types of refining will be introduced. Gas for

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cooking won't be wanted, which will finish the oil fields."

Gardner had been looking at his desk, thinking deeply, his head in his hands. He looked up slowly. "My God, man, he'll ruin the world! It's going to ruin ME. I won't have a cent left after this panic gets over." His face was going white. Oil—dead! Power—dead! Automobile corporations—save one—dead!" His voice took on a cold, steely menace.

"I've GOT TO BUY that patent! Get out." The lawyer left the great man brooding, staring out at New York sweltering in a late September heat. But he didn't see New York, he was seeing the things that would happen if this invention was sold. His comforts would be stripped from him, his yacht, his home, his apartment—and another apartment—everything. He could not get out, for the instant he started selling heavily enough to make a practical retreat, the word would be out, and he would be swamped, the market would drop to zero—everywhere—he'd be cleaned out as his pyramided loans collapsed——

God, but he hated the man who invented that battery!

CHAPTER III

BY the next morning Gardner had decided to try his one hope for salvation. He had not slept that night, and his face was lined from lack of sleep, his eyes were blood-shot, and there were patches under them. He knew he stared ruin in the face if he did not succeed today.

At the office he rang for his secretary at once. "Arthurs, I want to locate Bruce Kennedy; try this address, and see if you can get him here before lunch."

Robert Arthurs looked surprised. He had found out quickly that the patent lawyer's visit yesterday had upset his employer badly indeed, but he had not learned how. But now he was again violating his hitherto inviolable rule—he wanted to see some one before lunch!

Nevertheless it was nearly eleven-thirty before Kennedy arrived. Arthurs went into Gardner's office at once. "He has come now, sir," he announced. No need to say who had come, Gardner had been asking him about it all the morning.

"Ahhh—send him in! No, wait. What does he look like?"

"About twenty-five, sir, six-feet I should say, weighs about one hundred eighty, I should guess, powerfully built, intelligent, well mannered, soft, deep voice. Clear eyes, brown, and brown hair. Good looking, and seems very anxious to see you. I took the liberty to mention it was on the matter of an invention of his, and he promised to come at once."

"Damn! Why did you—oh, well, perhaps he'll want to sell. I may be able to get it reasonably——" Gardner seemed lost in thought. "Young you say—probably no more money than he needs?"

"Oh, no sir, he is young, but Bradstreet says he's worth close to a quarter of a million. His father left it, an old mining claim that petered out, that is gold mining, was reopened shortly before his death. Some one sold him the mine as a gold mine, salted it first, it seems, and shortly Mr. Kennedy found a genuine vein, but when it gave out he left. He had gone west for his health. Five years ago he sold it for a quarter of a million as one of the rich tungsten mines. He would have gotten more, but it was inaccessible."

"Thank you, Arthurs. Excellent. That may help in talking to him. Send him in, please."

Kennedy came in smiling. "I don't know just what this call is for, Mr. Gardner, though your secretary mentioned a patent, and I have only one."

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"That was the one; I heard of it through a patent attorney of mine. You seem anxious to get to business. The great man smiled disarmingly.

"I am, I guess. I got the patent only a few days ago, and have been getting ready to attempt marketing it."

"Have you offered it anywhere?"

"Yes, but no one has seen it," Kennedy admitted ruefully. "They didn't believe."

"That is a model?" Gardner asked, noting the small satchel in his hand, not unlike a doctor's bag.

"Right." Kennedy opened it, and took from it a miniature battery such as that still working in his home in New Jersey. He pushed a button, and a small motor hummed feebly, rapidly gained power and speed, and finally settled down to a steady whine.

"The blower—air is needed to supply the oxygen for combustion of the graphite. This battery simply burns coal electrically instead of thermically. The energy that would come off as heat in a furnace comes as electricity. Furthermore, it uses graphite, the natural form of free carbon. Coal can be converted to graphite in electric furnaces cheaply, now that electricity will be cheap."

"That might run a flashlight," said Gardner skeptically, "but it wouldn't replace a dynamo."

"THAT would run an automobile," smiled Kennedy, "and it, or a larger one, would easily replace a dynamo. The case is steel, with black enamel baked on. It is a strong, tough battery. The solution, which is the real secret of course, is cheap, and like the solution in the ordinary lead-acid storage battery, lasts practically forever, with the occasional addition of water. The solution in a storage battery is renewed by charging, that is renewed by the current forced through it."

"How much do they cost?"

"This one cost me five dollars to build, but if you build a hundred thousand they would cost about one hundred thousand dollars."

Gardner whistled softly. "What's the trouble with them?"

"Why—nothing!" replied Kennedy, puzzled and annoyed.

"Lad, there is nothing in this world that's perfect. Automobiles run out of gas, storage battery plates shed, generators overheat and burn their insulation. What's wrong with them?"

"Oh, well—graphite is soft, and somewhat brittle. I've been using very high grade artificial graphite, which leaves practically no ash, but in commercial power plants they would have to use cheap, natural graphite, and add an ash tray of some sort. That would mean draining and refilling at periods. The cheaper the grade of graphite, the more ash."

Gardner nodded slowly. That certainly was not a serious objection. "But in automobiles—don't the plates crack, and break?"

"They were mounted on springs and sponge-rubber in the car, and mine haven't cracked yet."

"I understand the metal plates are gold-plated," said Gardner at length, and that sounds expensive. How can you make the set for a dollar?"

"They give away gold-plated razors," Kennedy reminded him with a smile.

"Well, I'm convinced. You had a model at the Patent Office, and they accepted it, so it must be O. K. What do you want for your patents?"

"Mr. Gardner, I don't want to sell them. I want backing. I want five million dollars worth of backing, but I don't want to sell the patents. I want to put this on the market."

Gardner's face did not change, but he was going to have those patents. He HAD to have them.

"I offer you *one million dollars*

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cash for those patents;" he said slowly.

Kennedy's face fell. "I'm sorry, Mr. Gardner. I had hoped we could do business. I am not selling."

He put the bag on the desk, and returned the battery to it. Again Gardner made an offer, and though he tried as much as five millions, Kennedy would not sell.

"Good God, man. WHY won't you sell?" he demanded at length, just as Kennedy started for the door.

"You own heavily in power and oil, Gardner. You are making money in it, and this invention is going to change things. I want to hold these patents, and see that that they are *used*. This is an invention that is not going to be suppressed. If necessary I can start in a small way myself." Kennedy went out.

Gardner settled back heavily in his seat. Kennedy had not been angry, simply immovable, he had decided, and the decision would stand. He knew that type of man.

Presently color returned to his face, and he sat there steadily looking out of the window, while his secretary refused all comers. He did not eat, and it was nearly two o'clock before he moved again. Then he hurled himself into action at once.

"Arthurs," he said sharply, hurriedly," "get Jimmy Blake and Bob Hill in here. Tell 'em it's worth their while."

In ten minutes, from other parts of the great building, the two men came. They listened, and paled while Gardner talked. In the end, scarcely ten minutes later, they nodded, and started for their offices.

Two and a half billion dollars set about crushing certain stocks and bonds, marshalled and directed by three of the keenest minds in the Street. In the short time remaining that day, those stocks were crushed so low that they were almost valueless. They were the stocks in which Kennedy's money was invested.

But there remained some ten thousand dollars in Government Bonds, and a few thousand more in some of the finest industrials that even Gardner and his friends had not dared to assail, they were so solid.

CHAPTER IV

THE dining room of the very exclusive club was a beautifully furnished place, paneled richly an air of quiet and impressive dignity, almost of over-aweing dignity, lent a quieting effect that hushed voices tending toward raucous volume. Lung-power is frequently well developed on the floor of the Exchange.

Gardner was talking to a group of friends at his table, and as he finished the dessert he chuckled to himself. The group of hand-picked friends looked at him admiringly.

"Well, Charlie, what is it? Whom did you fool today?" asked Wainwright smilingly.

"Nobody, Bob, nobody. Somebody tried to fool me." The great man chuckled again. "Come on down to the smoking room, and I'll tell you the story of a patent."

"Well," said Caller, settling himself between Gardner and Wainwright, five minutes later, "here we are, waiting expectantly for your tale." He bit off the end of a cigar, lit it and settled back comfortably.

"A man came in to see me yesterday morning, with a great idea. He was going to put all the power plants in the country out of operation. He had invented, and patented, a sort of a wet dry-cell, as far as I could make out, from his cautious statements. The only things he said that weren't cautious and as discreet as one should be when selling a

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patent to the man who is scheming to rob you, as he decided I must be, since I wasn't enthusiastic, were his claims." Gardner permitted himself a hearty laugh.

"Well, he had a battery that was like a big dry-cell, only it was wet, and he wanted to put that in place of generators, just have a lot of big batteries instead of generators."

A general laugh was interrupted by Wainwright. "Well, you bought it up, of course!"

"No, but would you believe it, the fellow was really quite surprised and put out because I didn't. His point was that it was more efficient and didn't require a lot of boilers and generators. He evidently neglected to figure the cost of his metal plates—oh, by the way—the plates had to be gold plated!"

"Gold plated batteries for power houses! Good Lord, why didn't you call up the Psychopathic?"

"And direct current at that, you know. He'd have us using cables like those in the George Washington Bridge to ship power!"

"Who was this genius?"

"Ah—let's see——" Gardner pulled out a notebook and consulted it a moment. "Oh yes, fellow named Bruce Kennedy —the inventor of the gold-plated wet-dry-cell for power-houses!"

The talk veered after that, and shifted to many other subjects, and Gardner left, to go back to his office and make certain the stocks he had depressed stayed there.

His work had been done, and, he felt, well done. None of those men he had talked to, the most important on the Street, would touch that battery now. That was a clever touch, he felt, mentioning the gold-plated plates of the battery. By to-morrow every man on the street would know the story, and be laughing at it. Kennedy's stocks would be useless to him, he could not build the things himself, he would try to get help, and help would not be forthcoming, he had turned on that battery the heaviest bombardment he could find—the bombardment of ridicule that will blast asunder the greatest hopes and the wisest plans.

* * * * *

KENNEDY sat morosely behind the wheel of his car as he drove slowly along. The Holland Tunnel seemed crowded, and the comet of yellow light he followed and kept pace with seemed as elusive as his hopes of selling that idea to some of the big men who could have supported it.

Out of the tunnel, up the ramp, then up and across the Meadows, past the lights of the Newark Airport. He turned off, and cut across country to the southwest, avoiding the city ahead. His low, grey coupé hummed softly along the road, and as he got free of the heavy traffic he opened out a bit, the accelerator went toward the floor. The smooth whine of the powerful electric motors mounted in *crescendo,* and the road began to flash back at higher speed.

Automatically he followed the road back to his home, for in the past week these trips had become automatic. His name had been sent into the sanctums of the great, and it seemed almost as though something discreditable had been known of it, for, invariably it came out almost instantly. He had not seen one of the men he had wanted to see, and still his stocks hung so low on the market he could not sell them for the money he needed.

Suddenly he sat straighter, and the swift-moving car swerved slightly under his hands. "And I almost forgot——!" He smiled happily.

Bob Donovan! Just a short while ago he had thought of Bob Donovan as one of his best, and poorest friends. Bob's father was rich, distinctly so. But he had gotten rich by his own hard work,

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and had every intention that his son should do so. In fact, the stipulation was that until Bob could gather the sum of ten thousand dollars in one year, by his own efforts, the estate would not be his, and the interest would simply add.

Then Bob had succeeded, and in just one week that year would be up! In that time, he could not have transferred his estate of better than five millions to stocks, which Kennedy was beginning to distrust.

A little town appeared ahead, and the swift, grey car slowed down, the motors taking on a peculiar whine as it did so. The car became momentarily warmer, as the motors acted as generators, throwing their current into heating resistance coils.

Before a drug store the car stopped, Kennedy locked the car and went into the shop.

He telephoned a telegram to the nearest office, and came out smiling.

It was an hour later when he reached his house, garaged the car, and went in. A telegram awaited him.

"GOT ESTATE AT LAST STOP VERY BUSY AND CAN'T COME STOP WHAT DO YOU WANT
BOB."

Another half hour, and Bob Donovan was looking at a yellow slip with the familiar strips of letters.

"NOT HALF AS BUSY AS I AND YOU CAN COME ONLY YOU DON'T KNOW IT STOP LEAVE ESTATE AS IT IS AND COME STOP FOR GODS SAKE DONT BUY STOCKS STOP I NEED CASH AND YOU WANT MORE COME STOP INVENTION BRUCE"

Bob Donovan frowned, finally grinned, and called his lawyer. Then, having gotten that immensely annoyed gentleman out of bed, and arranged to leave the estate as it was, he sent a telegram—collect.

"YOURE ANNOYING ME STOP COMING TO ANNOY YOU AND WONT STOP BOB"

Apparently he was very anxious to carry out his threat, for he hired an autogyro, and covered the two hundred and thirty miles from Boston in an hour and thirty minutes. It was then after four A. M. and he greatly enjoyed getting Kennedy out of his comfortable bed.

"Well, look who came. I see you lived up to your promise didn't you?" said Kennedy slowly.

"SUCH a greeting, such a greeting, and from one who invited me. Don't you know, my lad, that I'm a dignified and important millionaire, and that little boys with inventions should go to the millionaires, and not make the millionaires come to them?"

"Shut up. That's what I've been doing all the week. You never wrote me or let me know you'd inherit that estate, and you almost missed out. I've been running to millionaires trying to sell them the idea of backing me, but the only man who would see me wanted to buy it, and it isn't for sale."

"What is it?" demanded Donovan.

Kennedy led him down to the cellar, and turned on the lights. "I haven't been connected with the city power for three months now," he explained, and pointed to a long black case aganst one wall. It was far larger than the small experimental battery he had been working with in May, and leads from it connected the house wiring. "That's the invention. Ive installed electric heaters in every room, and you noticed I turned one on when you came. It's chilly these late summer nights, and already they are useful. That combines my furnace, power and light, and my gas connections."

"What is it?"

"Battery of course. Do you remember my lectures on that subject before we left school? I've been working on it now

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for three years, and I got it at last. That's the result."

Donovan started, and wheeled on his friend, his blue eyes opened wide in amazement. "FUEL BATTERY! You did it Bruce! And I'm backing you for all it's worth. How much do you want, why didn't you back it yourself?"

"Bob, I'll tell you. I told Gardner about that, he seemed to have heard I had the patent, and sent for me. He wanted to buy, but I wanted backing, so he wouldn't agree. I told him I could get backing elsewhere, and if necessary do it myself. That afternoon my entire group of stocks, save for a few of the biggest companies, where I owned comparatively small amounts, laid down and went to sleep. They are still sleeping. And I haven't seen anybody else."

"Is that so? And what do you think happened?" Bob's eyes squinted slightly at his friend.

"I don't know. I thought Gardner might depress the stocks, but he couldn't keep his enemies from seeing me."

"Couldn't he? Why couldn't Columbus get anybody to back him when he tried to sail to the Asian coast?"

"Everybody laughed at him—but——" Kennedy's quick mind began to understand, and see the laughing points. "And do you know, this thing has gold-plated metalic plates."

"That's the answer, Bruce," nodded Donovan. "He probably told them you had some sort of an oversize dry cell with gold plates that you wanted to replace the power plants with. Tell that to a group of friends as a joke, and the whole financial crowd would know it in a day. The only support you'll get, according to his lights, is from him, and he wants to buy. What are you going to do?"

"Do—why build a plant and start manufacturing if you'll let me. Your estate hasn't been taken out of bonds and banks and real estate has it? He can't depress the price of government bonds, and banks still have to pay cash. We can start manufacturing anyway."

"Manufacturing what? Flashlights? We won't be able to borrow, Gardner and his pals have too much influence, and five millions won't do a lot. We need five hundred millions and we could get it in a day after a few big demonstrations—if Gardner weren't opposing us.

"If we manufacture flashlights, or anything little, no one will ever believe they will work in a big size."

"No, and by all the planets, I'll wreck Gardner! He can keep banks from loaning, he can keep brokers from investing or offering stock, but he can't keep you from using your own money, if you will. Listen—all we have to do is to make a few thousands of those over there, and sell them to private owners! I can make one of those for about one hundred and twenty-five dollars on a quantity basis, and they cost about five or ten dollars to install. Their one difficulty is that they give D. C. and all modern radio sets use A. C. and the television sets use the A. C. power lines as a third circuit for synchronization.

"But there aren't many television sets yet, and there are lots of D. C. radio sets. We can get G. E. to make some sort of a heater for rooms that works on 110 D. C. and then we are set. We can sell to suburban homes. How many women would like to have electric ranges, if the power were only as cheap as gas? How many men would like to have a heating system that would warm the house in ten minutes in the morning, and could be turned on with an alarm clock that would work every time. Our greatest, in fact only, difficulty will be the electric clocks and radio sets.

"But look what happens: We steal a lot of Gardner's power customers, we bring the battery sharply before the public, not

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as a flashlight power source, but as a genuine source of practical power. Farms will buy them for power, then small cities will see that the municipal plant could use a big set.

"Then there will be the next step—automobiles. I'll show you one to-morrow, mine. I made better than one hundred seventy down at Daytona Beach, but I got scared, I guess, and cut the power. It has two motors, and a big battery under the hood. The motors are in the wheel. I reversed the usual system, and have a revolving field with a stationary armature. The wheel is the field."

"You're right, Bruce. We can—and will!

"Now let's sleep."

CHAPTER V

MCHAS. GARDNER looked up from his work, at a tiny red light that appeared suddenly in the frame of a picture on his desk. He looked across the study, toward a long oil painting. He hesitated a moment and punched at something on his desk, the lock, apparently of one of the drawers. A faint click was the response, and the oil painting opened inward. A slim, black-haired man with sharp black eyes stepped quickly into the room, and the painting returned to its frame.

"Chief, they beat me. Gawd, I never saw anythin' go like that grey coupé of his. He got a friend wid him. I dunno who it was."

Gardner's face flushed quickly. "Cazoni, I told you to put some men on him!"

"Aw, Chief, I did but, hell, the guy went into dreamlan' about two in the A. M., an' the guy was tired as hell, so he pulled out. I had another torp on the job about five, an' it was dark. How'd we know anybody came. They——"

"Fool! I told you to change men so he wouldn't know he was trailed. He found it out, and beat you! Imbecile!"

"Aw, Chief, I did change men—plenty. I dunno how he found out, but anyway, that friend must a slipped in at night an' how was we to know?"

"What happened this morning?" demanded Gardner.

"About six-thirty the man on the house—Tony, ya know, he got Chi to take his place, and got some chow. It was after seven 'fore he got back, an' Chi was mad an' beat it. Nothin' happened though till about ten, then they—only Tony thought he was still alone, he sent away that house-keeper a while back, and has her come in every other day—well, they got breakfast, then about eleven two guys came out, an' went to his garage and got out that grey car of his. Ya know, it looks like hell, no lines at all. Looks like a model of 1930. Big square-front radiator, posed headlights—got pants on the wheels though. Well, we didn't think it could move worth talkin' about, and we had a big Packard 16.

"Well, they start out, an' light for the north. They go nice and easy up the Hudson, cross above the Big Town, cut toward the coast again—an' hit the main Route One north. It was early in the afternoon and it was a week-day. They lit out, man how they moved. Tony picked me up, when he saw where they were goin', an' I was with him. That boat of mine will do 120 any day easy. But that old grey can was doin' 100 by the time we could hit eighty, and was so far away we couldn't see it, when we hit bettern'n a hundred. Chief, I never saw anything move like that did. That boat of mine acted like it was a balky truck beside an airplane.

"We gotta get a boat like that, Chief, before we can keep him in sight. What kind is it, daya know?"

"So you lost him. Lost him just after

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he found some friend. What did the friend look like? Tony say?"

"Tall, blond, good-lookin', looks like a college friend of this guy's. Looks slow, but Tony says he moves fast, dropped somethin' an' it never hit the ground. They had a big black box that made the springs move when they put it in, but this bird handles it easy. Guess he's strong. Kinda slim though. 'Bout five-eleven or six-one, somewhere in there."

"College friend, eh? Headed north on Route One, and just ran away from you? Keep a plane handy after this, and use a short wave set to keep in touch," ordered Gardner. He paused in thought. "And find out who that friend is, and *locate Kennedy!* Get that? There's more in this than in the rest of our business. The car—he made it! The thing that made it so fast is what I want. It's cost me five million dollars on the market already to keep him from getting some support! Now do you know how important that is?"

GARDNER'S eyes blazed at his lieutenant. Jimmy Cazoni whistled softly. "Five millions! It's worth that, eh?"

"No. It's worth a hundred times that!" Gardner spoke tensely. "DON'T LOSE THAT MAN WHEN YOU FIND HIM!"

"We won't, Chief," promised the gangster. "How about an accident to that car—wouldn't that help?"

"No. It would be worse, if anything. He and a friend of his named Robert Donovan made exchange wills, I believe. Neither has any relatives, and they fixed it up a couple of years ago. Some kid stunt, I guess, but it holds. And this Donovan——" Gardner broke off with an exclamation of dismay! "Donovan—Boston—Route One—Good God! That Donovan just came into a fortune of five millions, and he could give that man support!

"Cazoni!" he turned his eyes sharply to the slim black-eyed man, "Get men on the look-out in Boston. Try first at —" Gardner searched hurriedly through some papers, and found the letter he wanted—"409 Marlboro Street, Boston. This Donovan owns the place—apartment house I believe, and he's been living there. Keep Tony watching, and if he recognizes the man, send me word. Now beat it, and MOVE!"

Cazoni started rapidly toward the painting, but Gardner called him back. "Wait—let Nannery take over the other business, and don't bother me. I'll be busy, so he can handle it himself. This is more important."

Cazoni stepped in front of the picture with a word of agreement, the frame clicked, the picture swung back, and Cazoni disappeared.

"Thank heavens I have an organization I can depend on in time of need," piously declared Gardner. "With those two together, I may be able to get somewhere." He smiled approvingly.

* * * * *

"Well, do you believe in it Bob?" asked Kennedy, as the grey coupe swung to the curb in Boston. The whine of the motors died, and the parking lights went on.

"Sweet, little brother, sweet. I never heard so pleasant a sound as the hum of those motors. Even when we hit 140 they hummed, and there was no engine vibration. How long can you go on one set of plates?"

"About three thousand miles, Bob. I carry a spare set, as well. Remember that I get eighty-five per cent efficiency from those plates, and an electric motor is better than ninety per cent efficient."

"What a thing for an airplane motor!"

"I've been wanting to try it, but I made this first, as easier and safer to experiment with."

They were getting out their bags, and

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walked across the street, into the apartment. "I have a plane now," said Donovan softly. "Or should have. Lockheed promised it to-day. It's a special stratosphere racer with high-altitude Diesel. How much would batteries and motor weigh?"

Kennedy's eyes were bright. There was more fun, more enjoyment in the experiments than the constant disappointment of the business. He calculated rapidly. Presently he frowned slightly. "Hard to say. The batteries increase in weight for desired cruising range. I should say eight hundred pounds for one thousand horsepower and ten thousand mile cruise, but with every additional two hundred pounds another ten thousand miles of spare plates can be added."

Donovan whistled. "The engine and charger alone weight one thousand pounds, fuel additional, and the power declines from eight hundred horse at sea level to three hundred at fifty-five thousand feet. Any decline in your scheme?"

"I'll tell you, I don't know, I've never tried it, you see. The composition of the air as fifty-five thousand is about the same but the density is easily arranged —just a pump, and the batteries use one anyway. Simply make it larger. Or better, have them in the fuselage and keep air there."

"NOT so good," replied Donovan, sitting down in a chair, "because air has weight, and it will just mean that many more pounds of thick air to carry with us. But will it work?"

"I'll bet I can get at least nine hundred at any height, the plane will fly."

"Let's have supper and then we'll see," suggested Bob.

They reached the field after dark to find that the plane had been delivered, a five place stratosphere plane, the airtight cabin with its double walls streamlined with a beauty that seemed to make the plane move even when at rest. The great radial Diesel, surrounded by the Venturi cowling and the bulge of the supercharger alone seemed to break the lines.

"No cooling on an electric motor," muttered Kennedy, "but that's the prettiest thing I've seen in years."

"It'll be prettier," replied Donovan. "I'm going to take it up now though and then be able to see the difference."

"I'll get busy, the Lockheed man is still here," replied Kennedy, and stuck to his decision.

Before they left the field that night, men were at work unshipping the heavy Diesel and the fuel tanks.

The next morning they went to see James Montgomery, of Montgomery, Harrison and Flagg, Donovan's lawyers.

"So what we want," Donovan concluded, " is your advice, help, and perhaps if you wish, a partnership with us."

Montgomery shook his iron-grey head and laughed. "Couldn't make it—your lawyer. Corporation law. Want to incorporate don't you? What's the title?"

"Kennedy Fuel Battery, Incorporated," replied Donovan instantly.

"Kennedy and Donovan," said Bruce insistently.

"Kennedy Fuel Battery is better, it's your battery."

"And your money."

"All right, give me a show for my money will you, I say Kennedy Fuel Battery," grinned Donovan.

"Now the next question," interrupted the lawyer, "is whether you have any money, Bob. If what Kennedy suspects is true, you'd better draw out of banks before they close. I can believe it, because that's Gardner's way of fighting."

"Why—what do you mean?" asked Donovan in surprise.

"About a quarter of a million of your money is still in banks, due to the orig-

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inal trust, and another million due to the fact that it is changing hands. If Gardner suspects you are lending help, he can readily tie up those funds—break the bank if necessary, close it for examination of books, a number of things. Get out of that, and buy—Government Bonds, I guess would be the best bet."

"Do it," nodded Donovan.

But it was easier said than done. They acted quickly, taking the largest deposits first, finally coming to the smaller. They did not get four of these, totalling one hundred and seventy-five thousand dollars. The rest were in bonds already, and unassailable.

"He had moved. How under the sun did he know so soon?" asked Kennedy helplessly as they left the doors which bore the announcement that payment had been temporarily suspended.

A short, heavily built man across the street could have told them. He ducked into a drug store and telephoned as the grey coupé started down the street, a powerful black touring car following it.

"'At's him. Mus' be this Donovan all right. What is he, a cop? No? Soun's like a cop's name," he reported.

Presently he was walking rapidly across the Common and made his way toward Marlboro Street.

M. Chas. Gardner had given another order.

CHAPTER VI

GARDNER listened to the somewhat metallic voice from the telephone, and cursed softly to himself. Donovan had beaten him to his banks by minutes only, and now there was practically the whole of his fortune in a condition he could readily use. Further, it was in bonds, bonds that could not be driven down in value, and Gardner realized that no amount of juggling would get those funds frozen again.

Further, the companies with whom Donovan would place orders would accept the orders—but loans—— He would have to have some loans if he wanted to make the batteries on the scale that would be demanded. To manufacture batteries for power plants would require more than a few millions, particularly as only the small, municipal plants would be available to him. Gardner himself controlled the big plants that could have given saving orders. Automobiles—no, he could control that. Laughter! The bomb that would explode any plan among the giants of industry, the men that gave orders in the thousands of units, hundreds of thousands of dollars. Unless he started a new make of car, and that meant months of designing, more months, years, perhaps, before the public accepted it. Flashlights—that was the place for batteries, but there were no millions in that, and it would do enormous damage to Kennedy's invention. Flashlights and million horse power power-plants don't come in the same thought.

No, Donovan would be tied for some time yet, and Gardner decided, as he hung up the receiver, that the campaign of ridicule must go on. It must spread to Boston, to other cities. So on that day men from his office went to various cities—to tell a joke!

They were sent to financial centers to do some business, some reasonable excuse was given, but everywhere the tale of the golden battery was told.

But that was not enough. A second report reached him soon after they left. "Kennedy Fuel Batteries" was being incorporated. The next order would have surprised even the not easily surprised Montgomery. Gardner went home to give the order, and he used a private telephone, which was not listed, to call an unlisted number in Boston, and a second unlisted number in New York City.

"And remember, Gazoti, *be careful to*

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have that pen job first and do that second one right! If you fail me in that, Cazoti ——" Gardner's voice was harsh.

Cazoti understood, and assured Gardner things would be "fixed up."

Gardner was worried, horribly worried. He had spent thirty years in building up the collosal machine that he represented to the world, and nearly five years building up that secret, deadly machine had more than once, aided in the smooth passage of the greater machine. It had grown out of one of those rough passages. At the end of the depression in 1933 a certain man had threatened the horizon, a black cloud of storm that seemed about to sweep away those pyramided loans, toppling already. That man had been murdered—mysteriously.

But never before had so serious a menace appeared. This was, he knew, a Hydra of Business. To lop off one head, he knew would be useless, unless he could fasten himself firmly in its place. Those patents—the patents that he must control;

They meant millions to him, if he could get them, but he was growing old, and these younger men were thinking faster than he now, forseeing his moves. They meant millions if he could get them, but if he didn't——

And all he wanted was peace!

CHAPTER VII

WHEN the large battery in his cellar had been made, dies and patterns for the parts had been cut, and as they were by far the most expensive parts in the construction, Kennedy had made twenty complete sets. As a result, the batteries for the plane were readily put together, a freight plane making the trip down to New Jersey and back with them. In the meantime the powerful, light, electric motor was easily obtainable, for that was practically standard equipment obtainable at once.

They ripped out the fuel tanks, and the engine during the morning, and in the afternoon the batteries were set up in their place, electric heaters were installed, and electric motors powered the compressors, that would maintain atmospheric pressure in the cabin.

Nearly the entire day was spent at the field, working on the ship, and night was falling when at last they were ready for the trial.

Wainwright, the Lockheed engineer, had been a great help in the work, for he knew the plane thoroughly, and the tensile strains the various members could safely resist. And now that the plane must be re-licensed, he offered to go with them to testify as to its fitness before the Inspector of Aviation. To reach the government official, they found they would have to go to his home in Quincy, and the three men crowded into the grey coupé.

Across Boston, out through the Jamaica Parkway, and finally swinging into the Cape Cod Superhighway, the grey coupé moved leisurely.

Behind it a large black sedan with New York plates moved along at an equal pace. As the two cars swung out on the eight-lane concrete super-highway, the powerful sedan spurted ahead, rapidly cutting down the quarter-mile lead. Presently it swung across the round of the speed-lane separation rib. The two-lanes high-speed concrete with its banked curves opened out before it, and almost simultaneously the grey coupé shot forward with swiftly rising speed, and struck the high-speed lane.

But the black sedan was wide open, its powerful multi-cylinder engine roaring gently through the muffler. It flashed rapidly faster.

"Lord, this boat can move. I could scarcely believe you when you told me about it," said Wainwright, watching the

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speedometer move steadily across. Eighty —one hundred——.

"Still rising," smiled Kennedy, watching the road ahead. The speed lane was practically deserted, though the slow lanes were fairly well travelled.

A whistling roar mounted suddenly from behind them, and a great black shadow moved up beside them, and passed them with a speed a full twenty miles an hour greater. But as it drew alongside a dull popping, like a whole carload of champagne bottles, a burst of dull red flame, and a metallic rapping burst out suddenly.

Three machine guns were discharging high-velocity lead at the driver of the little coupé! The car suddenly fell off, a whine changed to a hum as motors suddenly became dragging generators, and the car wavered in the road. With an added burst the black car with the New York plates drove ahead!

Kennedy's face was white, his hands clasped on the wheel with an intensity that made them as white as his face. Wainwright's eyes were opened wide, and staring. Dovovan looked slightly sick.

"I—I didn't guess that. Good God, how did they miss us?" he asked weakly.

"They didn't," replied Kennedy, a slow grim smile touching his lips. "Look." His groping hand found a heavy wrench on the floor of the car, and wielded it heavily against the clear plate of the windshield. The massive wrench was nearly torn from his hand, as the windshield bounced it back—the glass unharmed!

"I built for accidents. Experimental, you know—reinforced the frame and the body to protect me, used an accident-proof, and incidentally bullet-proof window I discovered, but forgot in the discovery of the fuel battery." The grim smile of tight lips persisted. He turned to the slow lane, maneuvered over to the right, and cut into the Circle.

"Wait—where are you going?" demanded Donovan, his face relaxing rapidly.

"Back, brethren, back, where they can't try again. "They'll use a truck next time, and I can't guarantee the resistance of the machine to that."

"That's where they'll look for you," Donovan stated sharply. "Go back to the next circle at your highest speed, now you've started, then turn, and run back on your course a second time toward Quincy. We'll do the business we started on, and they'll be looking for us somewhere else."

Kennedy nodded, and the grey car swerved over to the Boston lanes, turned quickly to the high-speed lanes as they passed sixty miles an hour, and mounted till they were whining down the road, the motor's song a faint scream, a curious blurbing sound of air gurgling like a brook over rocks as it passed the car. Somewhere behind, and rapidly falling further behind a police siren warned them to slower speed as a police speedster tried vainly to reach them. The wind howled protest, and the speedometer quivered at 150.

They slowed rapidly, swerved into the low speed lane, across to the Circle and turned back again on the over-pass to the Quincy lanes.

"It seems Gardner has other systems as well," said Kennedy drily.

"What will they try next?" asked Donovan wonderingly.

"Well, we don't sleep in this bullet-proof car, and even it isn't proof against a good big truck. Also, if we take that plane up they can feel sure it isn't coated with armour plate as this machine was—by accident."

"If I were you two," said Wainwright unhappily, "I'd take that plane, and go so high in the sky I couldn't be seen, and I'd move out of this town, and get lost. I'd lots rather have my life and the several millions you already have, than to

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lose the one, and have the other mean nothing to me.

"Anyway, you can leave me here with Thompson. I'll take a train back. They might try again."

Half an hour later, Donovan's plane had been relicensed, and with the necessary papers, Kennedy and his friend started back to Boston. But they circled out, swung well to one side, taking back roads and finally coming into the city from the direction of Newton. They used Donovan's thorough knowledge of the infinitely complex city of cow-path engineered streets, and twisted through the hundreds of one-way streets toward the air field. It was midnight when they arrived, and Donovan agreed with Wainwright that Boston was not a health-city for them.

They displayed their papers, the plane was wheeled out of the hangar, and the Field Manager gave them the take-off signal. Instantly the propellor spun into whirring, vibrationless life, the plane leaped across the ground with a startling suddenness and pulled forward with utter quietness. Its landing and running lights flared brilliantly on the ground for a moment, then almost before they knew it, the high-lift stratosphere plane was winging its way steeply aloft, the tremendously powerful motor dragging it upward.

"Great guns, Bruce, this motor pulls like a rubber band. It's so smooth you can't feel it, there's no sensation of moving, only a steady pull—and this 1,000 horsepower of yours is way off. It must be three thousand. I have it cut way down, and she's still ready to pull the bolts out." Donovan was ecstatic.

"One thousand ELECTRIC horse is 'something else.' A gasoline or oil engine gives 1,000 horsepower, when the cylinder is exploding, and runs on momentum for a while. This gives one thousand horse every instant."

"Another plane taking off," smiled Donovan. "Let's give them a race up."

As a matter of fact, the instant the two men had appeared on the field, and started for their plane, a crew of five men started for a powerful two-place racer. The racer was rushed out into the open, two men took their places in the cockpit, and one at each wing-tip, while the fifth quickly wheeled an electric starting truck into place at the nose. The powerful electric motor whined as the ratchet gripped the propellor hub, and the engine spun slowly. It was a gasoline plane, faster at the lower levels without supercharger, faster at higher levels, for it was lighter. The engine caught, barked into roaring life, and the starting truck was hauled away.

But here the plane lost out. For five full minutes it rested, its wheels chocked, its wings held while the engine warmed up. The electric plane leapt into the air gracefully while they waited, and the lights shrank into the skies.

The gasoline plane was designed for a ceiling of but thirty thousand feet, and was therefore far faster than the stratosphere plane, with its enormously larger wings, and far greater pitch. The gasoline plane rose from the field with a roaring engine barking occasionally in misfires, the exhaust darting back in red flames. It climbed steeply and swiftly, the slots in its wings open, as it fairly stood on its tail, and let the motor drag it up by the nose.

Two men in the plane; one a pilot, skilled in the daredevil stunts of pursuit and fighting, the other a little sleek-haired man with cold, black eyes, smoking a cigarette he could not taste in the backward sweep of a biting wind-stream. Nestled against his shoulder was a curiously heavy rifle, with wide flanges along its barrel, and a drum-magazine built into the heavy stock. A broad plate on the stock distributed the shock of the kick across the entire right shoulder. It spit

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viciously a few times in trial bursts, the sound drowned in the roar of the great X type motor, its twenty-four cylinders barking rhythmically now.

It climbed swiftly, far more swiftly than the heavy stratosphere plane with its weighty, air-tight cabin built for five. Twelve hundred horsepower flowed out the propellor shaft, and fought the rapidly chilling air. The pilot waved a hand, and the gunner behind slipped a headset over his ears.

"We'll catch 'em, Mug. They got somethin' new, I hear. A Diesel doesn't take the warmin' these gas buggies do, but even they can't take off cold, the way that bird did. I heard somebody say they had a thousan' horse motor. We got twelve hundred, and a lot lighter plane. They've got a couple minutes start—and twenty thousand feet to go before they hit our ceilin'."

The gunner nodded. He didn't realize, as the pilot did, but did not mention, that the stratosphere plane would gain rapidly in climbing speed after they left the denser air below twenty-thousand, while the power of the gasoline plane would be rapidly sapped by the scant air, the wings, designed for lower altitude than the larger machine, would begin to lose the advantages they held now.

The gas plane rose swiftly, and above the electric plane drew rapidly nearer. The gravitational altimeter was rising rapidly. Presently the gunner tried a few rounds in the direction of the plane, tremendously high velocity bullets, moving more than two miles a second, little larger than a thick pencil-lead moved upward, and sung swiftly into the night.

Donovan was concentrating all his attention on his instruments now, while Kennedy read the indicators that told the conditions within the cabin. The soft, gentle snore of the electric motor, the louder scream of the twirling propellor alone sounded as they climbed.

"Batteries working perfectly, Bruce," said Donovan briefly.

"How's that other plane?" asked Kennedy. "The air and temperature normal?"

"Gaining on us. Low altitude plane, I guess, and gets better speed than we can hope to."

"Try more—oww! What the——" Kennedy cried in pain in surprise, and looked at his leg. A trickle of blood oozed from a tiny puncture in his calf, the muscle was exceedingly sore, and a second tiny puncture on the other side showed something had passed completely through the flesh.

Quickly his eyes sought the metal wall, and he saw two minute holes in the sheet duraluminum. "Bob, I've been shot! That plane is shooting at us! A pencil-bullet went through my leg clean, and passed right through the plane! Use all the power!"

"What!" Donovan looked quickly down, and saw the sudden intermittent flashes from the machine below. "Right—machine gun. I'm afraid of this power here—but I'll have to!" He pulled the rheostat control back smoothly, and the gentle hum of the motor mounted swiftly to a driving, tearing whine as the controller reached its limit. The heavy plane tugged forward with a sudden acceleration, and the entire fabric of the all-metal plane creaked under the strain of the great power.

"A thousand electric isn't a thousand gas, or Diesel either, Bruce. She's pulling," said Donovan. Bruce Kennedy was busy already with an iodine solution bottle and a bandage. The minute punctures of the clean, swift-moving bullet had closed up already, and stopped bleeding.

The plane below was falling behind now, as the larger plane pulled viciously under the great moror. The speed was still rising, though the power from the batteries remained the same, the hum rose to a scream as the motor ran swifter.

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Kennedy listened critically. "Bob—that propellor! It's all right for 1,000 gas or internal combusion power, but remember an electric motor can, like a man or a steam engine, dig in its toes and heave, so to speak. A gas engine, like any explosive power, works the first time or not at all. That thing's going too fast. One can exert enormous power for a few seconds—the other has no such reserve."

It was, and Donovan cut the power slightly, still the pitch rose, and more rapidly now. Suddenly it seemed to shoot swiftly up the scale, the shriek of the propellor became a terrible roar, an ear-shattering, threshing blast.

"Shut it off!" roared Kennedy, uselessly, for his voice could not be heard. Donovan had already done it, and yet the mad propellor continued to shriek.

With the suddenness of a brake, the thing stopped whirling madly, and an instant later the white-faced Donovan threw on the motor again.

"Too much—reached the speed of sound, and simply went faster than the air could flow in. The plane below gained a sort of caritation."

The dark silhouette of the other machine stood out nearer against the lights of the city. Pulling with all the power the metal blades could handle, the other machine still gained.

"Fast—and light. About twenty-five to thirty-five thousand ceiling. We're at fifteen thousand now, when we reach twenty we should be able to pull up," said Donovan.

Kennedy merely reached over and pulled the master light switch. The lights of the machine died, and a starry sky, moonless, alone shed light on them. "Let's not advertise. The bullets have no ceiling."

The plane shot on, riding higher, while the dark mass below circled more blindly now. There were occasional very high clouds and it was hard for the pilot to keep track now.

His hand waved again, and the gunner took up his headset. "Fool! You hit and warned them. I can't follow them easily now till we get above 'em, and can see 'em against the city lights. They can spot us though."

"Aww—maybe I punctured their tanks. If they lose the engine-juice they won't climb high. Anyway, I mighta got one of 'em."

They continued silently fighting for altitude, while the pilot wondered vainly what had happened. For a moment the heavy plane had pulled away from him readily, then there came a terrific roar such as he had heard only once before, when somebody put gasoline in the fuel oil tanks of a Diesel plane, and the engine exploded. Yet after a moment the roar stopped, and the machine continued unharmed, faster than before, but still slower than he climbed.

Now he was following blindly, for only occasionally could he make out the form against the skies.

He looked anxiously at the luminous altimeter dial. Eighteen thousand. The heaters in their suits and gloves were on now, and the engine was losing power. A dribble of oxygen kept his head clearer. He had to catch them soon—or not at all. He never saw such a plane as this. It took off cold, flew perfectly, and without trouble. The high altitude propellor handicapped its power here, and the high altitude wings didn't help. Yet the power of the other had not diminished a whit. The engine of even the stratosphere plane should have lost somewhat. But it hadn't.

And the noise! What had that been?

Suddenly he saw the plane again, half-thousand feet above and climbing easily, faster now. The pilot saw he would never gain now. The plane was entering its own element and he was approaching his

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ceiling. The altimeter quivered at twenty-one thousand.

His hand went up three times quickly. The plane vibrated sharply, and the wings stood out suddenly in reddish light. The roar of the engine drowned the crackle of the machine gun, but he knew it was working. The dark shape above did not falter, and through the headset he heard a thin crackle of curses. The light on the wings flickered steadily for a long time, and the pilot himself cursed softly, and started down. The fool gunner had gotten himself thoroughly drunk on oxygen. His first trip so high, and when he should have used a mere trickle to steady his nerves and muscles, he was using it straight. No normal man would have held the fire steady, for no man could hold down the barrel of that viciously kicking little rifle.

He glanced around, and saw the barrel of the gun pointing and wavering widely. It walked up steadily as the thing kicked, and the gunner jerked it down savagely, then it walked up again——.

The pilot cursed softly to himself, cut the engine, and circled slowly toward lower levels. The fool!

CHAPTER VIII

"IT looks like they gave up, Bruce," said Donovan, as he watched the plane circling downward. Their machine steadily wound itself higher and higher, above the clouds, out and up till the stars began to shine in steady flame, and the twinkling of the atmosphere was cut off. There was scarcely any atmosphere at these altitudes.

"Yes, that plane had to go back, but that doesn't mean that friend Gardner will give up. We're up out of his reach now, but we have to come down again, remember. And he will probably be looking for us."

"How about coming down up at Happy Days? The island is well out into that lonely little lake up in Maine, and it would be some time before even gang-spies could locate us up there. The nearest town is Makeaho, and they don't even have a telephone in the town."

"Good idea. Stay way up, and they won't be able to see us. We can come down almost straight, and land on the island itself," agreed Kennedy. "The big field has a few stones, but I think this boat can land safely. At sea level the landing speed is most remarkably low."

The ship was still climbing steadily, and was nearly up to the fifty thousand feet level. Donovan was watching the instruments keenly now, and Kennedy with equal fascination. "Still going strong, Bob," he said softly.

"I turned on a little more power, cut out some resistance. The propeller seems to take a heavier pull in thinner air. The batteries haven't shown signs of weakening yet."

But finally, at an altitude of seventy thousand feet the batteries did show they could work no further.

The plane skimmed along northward now, and the speed mounted swiftly to well over three hundred and fifty miles an hour. In far less time than they had spent climbing, they were over the spot on which they had intended to land, and the machine began circling noiselessly down.

With slight bumps, it came to rest under a row of giant trees at the lower end of a slightly sloping field. Years before some frugal, hard-working New Englander had pulled most of the rocks from this field, but now the winter frosts were shoving them up again, and the surface was bumpy. The great, soft air-wheels rode them easily though, and they stopped safely. A low hum of the motor, the rustle of air, and the machine wheeled steadily about the locked left wheel, and

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came into position at the proper place.

"We can move right into the cabin," said Donovan in a low voice. "I was up here in July for a while, and was called away in a hurry. The boat's in the shed, below, and there's food stored in the larders for several weeks. Remember those trick storehouses we built," he smiled faintly, stretching stiff legs on the grassy meadow-land. "Come in handy, even the bread will be fresh."

"Yes, but old hermit, you may think you can isolate yourself in this lonely backwoods place, but all the same, said telegraph at Makeaho is going to be used by the Fuel Battery Company, much as we disapprove of the fact. We've got to tell Montgomery where we are."

"I think we'd best give up this whole game till we settle with Gardner somehow, sometime," said Donovan mournfully. "I think we ought to fight back the way he fights us."

Donovan produced a key as he spoke, and unlocked the door of the cabin. An oil lamp stood on the table, its reservoir still full. A moment later the little cabin was brightly lit as the mantle glowed white.

Kennedy seemed thinking seriously. Finally he spoke again. "Bob, Montgomery's got your power of attorney, and he knows in general what our plans are. With the boat we can call down shore at Makeaho easily enough, but they know us there. That plane is conspicuous. Let's get a good second-hand Ford, and park it somewhere near the lake shore. We can call at some town where we aren't known, reaching the car by the boat. Then at least they'll have some trouble finding us, and in the meantime I think I can prepare a warm welcome."

"Can Montgomery handle the stuff, and get the things you need—the right machines?"

"He merely has to tell certain companies that already have plans to go ahead and make the machines. I have already got plants to give me estimates on the cost of making the machines, and left plans with them."

"We'll do it," nodded Donovan. "Only one thing I don't like. I have plenty of money to get that Ford all right. Too much. I'm still carrying sixty-five thousand I got and didn't have time to reinvest."

"Stick it in the flour barrel, and come to sleep," Kennedy advised with a grin.

CHAPTER IX

GARDNER was looking angrily at the sleek, black-haired Cazoni and Cazoni looked surly, and uncomfortable.

"And so first he runs away from you in a bullet-proof automobile, and then escapes in a bullet-proof airplane?" Gardner smiled, a grimace. "I've heard of bullet-proof automobiles, and bullet-proof glass, but no bullet-proof glass I ever heard of failed to show the cracks! And I never heard of a bullet-proof airplane. You know as well as I that an airplane, to be proof against even the bullets of a revolver, would be so heavy with its metal plates that it couldn't lift off. And to be proof against the bullets from that little machine-rifle, it would need one inch armour plate, as you know perfectly well. No plane could fly with that. Did you use the same gun on the automobile?"

"Naw, they used an old Tommy. You can't silence a Weemar gun. Too damn many cars can make 130 now to get away, so we used a silenced Tommy."

"Well, they *might* armour a car against Tommy bullets, but you know and I know they simply shot all over the lot as usual. You said those windows didn't even crack!"

"Chief, I shot some myself, and I *know* I hit that window, but it didn't

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phase it. That bird's clever, an' I'll bet he's got somethin' new.

"An' I told you Gunner was the best man we could get in Boston. That damn town never was no good, they haven't any organization there. Just a lot o' squabblin' kid gangs. But Gunner is there because he ain't feelin' happy in Chi. He's good, but the damn nut don't know nothin' about goin' up. Charlie flew him, and he said Gunner got drunk. He said he got drunk on ox-eye or somethin' like that, an' I asked him what that was and he says air. How the hell can a guy get drunk on air?

"Anyway, Charlie said he was so plastered he couldn't see straight, but when he came down he was cold sober, and didn't have any breath at all. He swore up an' down he hadn't had a drop, only Charlie says he got ahold of some of this ox-eye somewhere."

Gardner cursed softly. "Oxygen, Cazoni, oxygen. It is in air, and you can get drunker on oxygen than on a gallon of white mule. But you sober right away, and you have no breath, of course.

"So he got drunk. No wonder they didn't hit that plane. Well, trace him, Cazoni. And here's a hint. They've gotten scared, and left Boston, their business is in the hands of that lawyer they visited, and they'll have to communicate. See if you can't grease a few palms and find out where they are."

* * *

Three days later Kennedy was busily working with a peculiar batch of apparatus. There were two large tubs, one filled with a peculiar, clear viscid fluid, a second with a slightly muddied water-like liquid. Kennedy was drawing a long thin copper ribbon through first one tub and then through the second, moving it slowly and steadily, and finally draping it artistically over the limbs of a young oak nearby. The clear, clean copper came out of its bath with a slightly greenish glassy look, and rapidly dried on the tree. The ribbons, each about one hundred feet long, when dry were laid on the grass of the meadow.

He worked all morning at this, and finally had several thousand feet of half-inch wide ribbons of copper, coated with a thin, exceedingly tough insulating layer of a special cellulose closely allied to rayon and cellophane. He stopped when his copper was exhausted, and went into the cabin, returning with a powerful pair of glasses, with which he inspected the lake. Then he went in, and presently smoke began to arise from the chimney. By the time Donovan came up in the small motor boat, and began unloading the materials he had brought, Kennedy leaned out of the door with a cheerful "Come an' get us!"

"I have got the things you wanted, Bruce," returned Donovan, "but I'll be hanged if I see what connection two enameled tubs, five thousand feet of copper ribbon, fifty pounds of absorbent cotton, a complicated nonperm alloy tube and the various other things have."

"Ah, you got the three tubes?"

"I did. Will you kindly dissolve the mystery as I dissolve this fodder?"

"Not till I'm sure of myself. Did you also get a package by express?"

"One package, express. Weight three hundred pounds, I'll have you know. You son of a gun, you said there was a 'little box for you.' How did you expect me to get that into the boat from the car?"

"That was somethin' I hadn't been able to figure out. How did you do it? I was darned interested to see if you could figure out a way," grinned Kennedy, looking up.

"Why you—— Well, anyway, I used the tow rope, and the car for power, with a handy tree as the derrick mast."

"Well, that's fine. And now, Bob, I hope we have given them enough clews."

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"Enough clews—enough for what?" demanded Donovan in surprise.

"To find us, of course. Did you send that last message to Monty?"

"Yes, and now please explain."

"I promised I would. And thanks for your faith in me, Bob. That was in a code Monty can get, but no one else can, because the thing is based on a sentence that he memorized, and is not written anywhere. I told him to lift the secrecy somewhat, just give hints.

"We can't fight Gardner openly," Kennedy's face took on a cold grimness, "and so we are fighting the murdering crook in his own way. I have some more work, and you're going to help. Then you'll see what I mean. The clews I mentioned Gardner could follow back to us. I'm afraid we couldn't hide, and do any work."

"So we have to leave again?"

"No, that's just the point, Bob, we aren't leaving." Kennedy looked long and steadily at his friend. A slow smile of understanding came over Donovan's face.

"And now, perhaps, I see the connection between copper ribbons and the magnetically inactive nonperm tubes," he said at last, softly.

CHAPTER X

THE heavy, pounding beat of the the powerful engine shook the plane, even though the sound of it had been muffled and hushed to practical silence. Beside it two much smaller planes flew. It was dusk now, and darkening rapidly on the earth, far below, but here in the high strata, the sun still shone.

"You—you're sure they have no weapons?" demanded Gardner.

"Hell, no. They'd a used 'em before if they did," grunted Cazoni. Cazoni was unhappy. He was airsick. "An' they didn't get any in either. They got a lot o' junk, some stuff on their machine I guess. Lotta cotton an' some chemicals, an' a big box full of somethin' heavy, but it came from the Framingham Iron and Steel Company, and it wasn't a gun. That came yesterday morning, and nothin' came since.

"Are you sure they haven't left?"

"Their car's still there, an' the boat. They were there this morning."

Gardner smiled to himself. "Cazoni, you certainly have done a fine job. And they have helped a lot. I'll give you this paper, which Kennedy must sign. If he doesn't—why—eh—leave this other one as I suggested."

"Wanta burn the plane an' so forth or not?"

"Why—I'm afraid it wouldn't have anything to burn. You see it doesn't use fuel, and it's an all metal structure."

"O. K." Cazoni pocketed the two papers and listened miserably to the pounding and creaking of the plane, and felt miserable as it heaved in the air pockets.

The coast fell rapidly behind, and the sun set below them. Maine lay beneath them now, and under the bright light of a full moon a silvery dot, like a luminous comma with a slight defect appeared on the dark surface, sprinkled here and there with lights. A tiny clump of lights on one side of the luminous comma marked Makeaho, a spot of light on the black defect in the shining surface marked Happy Days camp. To-night, Gardner thought, it would not be so happy for him. He felt he would like this Happy Days himself, but thought a good Indian name much better. The tiny log cabin must be replaced by a real house that he could bring his friends to——

The light below winked out.

"Gone to bed I guess," said Cazoni.

But they had not gone to bed. They had gone up. Since darkness began to

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fall, Kennedy and Donovan had been taking turns at a small amplifier set. A huge inverted cone of canvas reached upward, and at its bottom was a tiny thing no larger than a wrist watch. But it had heard the peculiar shriek of the air about the airplanes while they were still many miles off. Since then the two men had been very busy. They left the cabin now, and went down to the plane, changed since it landed, for now it was coated with a dull, lusterless black, a black like an egg-shell dipped in india ink.

Noiselessly the plane rose into the air, rising almost instantly as the tremendous power whirled the propellor, a new, larger propellor, and the wide wings gripped the dense, surface air. A faint hum carried the plane swiftly up at a steep angle. At a thousand feet it leveled off and darted across a narrow neck of water to the mainland's black background. It continued to climb.

"Think they saw us?" asked Kennedy quiety, braced behind a thing that resembled a long, black telescope, mounted rigidly into the plane's structure, poking its nose through a hole in the roof of the machine.

"No can tell," replied Donovan. "They did," he added a minute later. "They're diving."

THE plane pulled sharply, and the fabric creaked as Donovan threw an overload on the super-powerful motor. The great propellor bit and tugged. The machine rose steeply,

A black form came sharply down beside them, and something like a flickering red lightning snapped from its side. Kennedy swung to a second telescope-like machine that pointed downward. Suddenly it rattled viciously on its heavy frame, and a shrill whine came from it.

A terrible rending crack, a stifled scream of agony from the black shadow, and two black shadows appeared, each smaller than the first. Something tumbled from the one, and an instant later a pachute glistened in the moonlight.

"My God! They've got a gun!" gasped Gardner.

"I don't think so. No gun shoots without some light, and it ain't a gun that cuts a machine in two," said Cazoni.

"Let's go home," wailed Gardner. The plane turned upward, and started back to the south rapidly under his orders. The second small plane was flashing down at the climbing black thing, barely visible now against the forest. He lost it for a time, and when he found it again, it was above him, it crossed the moon. He himself was a shining, glistening thing now in the trim plane. His machine gunner stuttered out a few rounds of ammunition. Then something screamed through the night, a glistening sheet that moved across and swept toward their plane. Like a shimmering knife of silver light it passed resistlessly through one wing, angled forward and pelted on the heavy motor. With a roar the motor blew up, and fell from the plane. The machine twisted and fell over as the wing fell off, hanging by a few guy wires.

Two shining silken umbrellas fell free.

The black machine of death swept south in swift pursuit of the fleeing plane. Rapidly it overhauled it, and as they came nearer a machine gun chattered from the larger transport.

"The black paint's working, Bob," said Kennedy calmly. They can't see us well enough to shoot straight in this moonlight. He pulled down a lever, and aimed one of the telescope tubes toward the plane slightly ahead and above. A meter flopped over on the scale before him, and the mechanism, the whole plane, jarred under a heavy hammering. A silvery sleet flew out, and caught the larger plane just ahead of the tail, and ran its length, finally tearing out the motor. The fuel

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tanks burst into flame, and with a peculiar puff the plane flew into a thousand blazing parts.

"That's the end, I think," said Kennedy. Then he began to tremble, and his face went white. "God forgive me, there were men on that plane," he muttered.

CHAPTER XI

M. C. GARDNER DEAD IN AIR CRASH
FINANCIAL HEAD KILLED WITH COMPANIONS AS PLANE MYSTERIOUSLY EXPLODES

MAKEAHO, Me. Late last night the people of this town were startled by the appearance of a battered, scratched man in an aviation suit, who told the story of Mr. Chas. Gardner's death. Gardner, in a five passenger gasoline powered plane was flying north on business, when for some undiscovered reason his large plane exploded in mid-air, dropping burning parts at the two smaller, speedier planes accompanying him. The man who brought the news was James K. Terrence, pilot of one of the smaller planes, which was destroyed by the explosion of the greater. Terrence escaped by parachute. Several others also escaped from the smaller planes, but none were able to live through the explosion of the "flying office," as Gardner entitled his large plane.

Kennedy looked up at Donovan, and rested back in his comfortable chair. They were in Boston now, for they felt the danger was gone. "Convenient account, wasn't it?"

"Very," agreed Donovan. "What are we going to do," rush the fuel battery plant now?"

Kennedy looked very thoughtful, as he answered, slowly: "No, Bob, I don't think so.

"Do you realize what would happen if we did? If a substantial rumor even, got out, American Power, all the big oils, the big motor stocks too, would be pressed down to nothing. How many millions of people would be ruined by that? Would it be worth it to the world?"

Donovan looked at his friend steadily for some moments. "But—how can you help it. Unless you suppress the invention."

"I own the patents outright. Can't I lease the household power-battery rights to the American Power Company, let them scrap their plant gradually as they build and sell these batteries? Their investments in power-generating equipment will immediately be written off as worthless—but even the big traders will see that the power battery rights they have are fully as valuable. The stock will fluctuate madly—and gradually reach a steady valuation.

"The oil companies can buy the rights to manufacture smaller batteries, for automobiles, airplanes, trains perhaps. It will have to be worked out, but, Donovan, think of the misery it would inflict on the world to sell those things through a brand new company. Would it be fair?"

"It would not. I agree absolutely."

"Now there's just one more question I want to ask. What was the thing you cut up those planes with? I thought you were making a sort of machine gun."

Kennedy chuckled. "It was, Bob, it was. It was simply a long solenoid that threw little steel bullets, but it didn't use powder, it used electric power. Remember there was practically no mechanical apparatus about it, only electrical contacts made by the bullet itself, as it was drawn through the tube by the magnetic force. The lack of mechanism meant it could fire as fast as bullets could go through the barrel, no waiting while the thing was cocked and the used cartridge removed. When the bullet reached the muzzle, it

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Space War

By NEIL R. JONES

Few characters on our pages have won more lasting favor than Professor Jameson. We are telling the reader nothing in advance when we say that the description of the strange wars in this story present a novel aspect of the adventures of our hero.

Introduction

DUST to dust. So runs the ancient adage. He who lives today and dies tomorrow has lived in many structures and forms—and will continue to do so eternally. The grass grows more luxuriant over the grave. Molecular structure is impervious to universal change, subjected as it is to varying planetary conditions. Like the law of the deep sea, where one lives to eat and be eaten, so is the law above water, yet the transition is more intricate and complex. Animal life waxes strong upon the elemental sustenance of the earth, knows its brief day, then returns from whence it came to form the fertility necessary for the perpetuation of future generations.

After all his superior magnificence and earth dominance is taken into consideration, the fate of man stands out disappointingly common. Though decelerated to the maximum length of time by the artifices of mortality, his decomposition and change is as inevitable as that of the lowly insect or the troublesome, unlovely weed. In fact, various atomic units of his body may once have been part of an insect, or weed, and may be so again, all depending on the whims of an interminable fate. Atoms bear no respect for personalities. Atoms do not die but constantly change structural relations in never ceasing experiment. They are age-old, even beyond the hazy past preceding the age of dinosaurs, and their future remains indefinitely undying.

Professor Jameson knew this. Did he abhor the prospects of his body disintegrating after his death, like the established, inescapable precedence of all humanity, or was it the illustrious distinction of knowing that his corpse would never disintegrate that made him seek the boundless space between worlds as his grave? Following his death in 1950, his body was enclosed in a rocket he had previously built, and he was shot into the vast, star-studded mausoleum of interstellar space. Professor Jameson's rocket satellite circled the earth for more than forty million years while mankind and all other forms of life gradually vanished from the face of a chill, dying planet. The atoms had now become more or less dormant, lacking the stimulating ambition of a blazing sun. Earth's parent orb now hung blood red in the sky, nearer to earth yet cooled.

His rocket might have circled the earth forever had there been no interruption. Forever, did I say? Forever is significant of time, and time does not exist except as a plane along which the consciousness of sentient and intelligent beings move. At least, the rocket satellite with its eternal corpse would have continued its aimless pilgrimage until the earth eventually fell back into the sun from which it had been hurled at world-birth. But the professor's re-

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markable experiment was to bear unsuspected fruit. Forty million years beyond the twentieth century space wanderers passed the dying world in their space ship. They were not flesh and blood space travelers, though it was true that once they had been so.

They were Zoromes, machine men from distant Zor, a far off world of another planetary system. They removed the brain of Professor Jameson from his dead body and placed it in one of their machines, stimulating his brain into activity once more. Like them, he had become a brain in a metal head, a conical head surmounting a cubed, metal body, this body equipped with four metal legs and six metal tentacles. A complete circle of mechanical eyes peered from the head. Symbolic of the efficiency and practical genius of the Zoromes was a single eye which gazed upward from the apex of the conical head. The machine men of Zor conversed by means of mental telepathy.

The brain of the long dead professor was stimulated into life once more, and he regained consciousness, from his deathbed in 1950, to the strangest of imaginable situations forty million years later in the shadow of his own world whose changed continental features were no longer familiar to his sight. It was difficult for him to realize the truth, which he feared to be the distorted figment of delirium born from a physical rally of waning life force.

The last representative of mankind, the professor, now a machine man, joined the Zoromes upon a journey of perpetual discovery and exploration among the uncounted worlds of the myriad shining stars.

Eventually, the ship returned to Zor, and here Professor Jameson found both machine men, as well as flesh and blood Zoromes, on the eve of space war with the Mumes, veritable Frankenstein creations of a planetary system near by to Zor. The Zoromes had given the Mumes brain transpositions and mechanical bodies and in return had reaped the vicissitudes of ambition and treachery. The rising arrogance of the empire-mad Mumes, whose eyes were bent covetously upon Zor and its five sister worlds, brought about perfunctory raids on Zor for which the Zoromes had retaliated. Space war, like a monstrous orgre of the cosmos, loomed over both planetary systems.

CHAPTER I

PROFESSOR JAMESON gazed from the space flier at a brilliant, dazzling ball which outshone all other objects in the surrounding skies. It was Grutet, the little chromium-plated, sister-world adjacent to Zor. Farther away loomed Zor itself, while several scattered points of fixed light, standing out prominently against the background of twinkling stardust, marked the positions of the other four worlds of the planetary system. The professor turned and contemplated a fellow machine man, 12W-62, who had formerly been a flesh and blood Zorome known as Bext.

Bext and Princess Zora had been lovers. Bext was captured by the Mumes, and Zora had gone with two shiploads of Zoromes to effect his release from captivity. To her horror, she had seen Bext killed before her very eyes by the vindictive Mumes, yet upon her return to Zor she had found Bext a machine man. The ship of 24J-151, which reached Zor first, had rescued the head of Bext with its all important brain, and this had been placed in a machine and recalled to life again. But with the death of Bext went love's fleeting dream, and Zora discovered only a solicitous, yet passionless machine man in place of her lover. Torn

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with the relentless anguish of a lost love, Zora, too, became a machine man or rather woman, 119M-5.

"You have not been a machine man for long," the professor radiated mentally to 12W-62, "and for the position you have voluntarily chosen, it appears that your career may be a short one."

"What of yourself!" queried Bext. "You, too, have chosen to be among those who leave on the first of the ships for the initial attack on Mumed."

"True enough, yet several of my most intimate companions have volunteered to man the space ships of the vanguard," the professor explained, "and there is no better reason for my choice."

"Do you leave as a group?" asked 12W-62, turning the small space flier back in the direction of Zor. "Your expedition under 744U-21, I mean."

"No, we are broken up. 744U-21 is leaving with the main fleet which shall follow us at a later date. 20R-654, 41C-98 and others, of the expedition which found my dead body near the planet earth, are also staying on Zor to join the main fleet. Of the original expedition, 6W-438, 473G-90 and 56F-450 will accompany me aboard my ship. The rest under my command, including both machine men and organic Zoromes, are new to me.

"I, too, have been placed in command of a vanguard ship," said Bext. "It is a dangerous business. We must sound out the offense and defense of the enemy world and lay an attack in preparation for the main fleet of Zoromes. We are already looked upon as martyrs, a veritable death-battalion."

"Zora told me that you had been given command of a ship because of your efficiency in the same capacity before your brain transposition," said the professor, steering the conversation from the unpleasant prospects of their mission which Bext had been uneasily contemplating. "Zora is to be one of your artillerymen."

"YES, 119M-5 is now being given the finishing touches on Ipmats in regards to the finer points of space gunnery," was Bext's reply. "But as to my efficiency—why did I ever let the Mumes capture my ship and take it back to Mumed along with me? That could scarcely have been efficiency."

"But there were several ships of the Mumes," the professor reminded him. "They were all bent on one carefully laid scheme—capturing your ship and taking you back to Mumed alive. The Mumes waited until they found your ship isolated from the rest."

"Few of their ships have approached our system since then, thanks to the space mines."

12W-62 alluded to destructive projectiles left drifting in space about the six world's of Zor's planetary system.

Necessity is the mother of invention, and the space mines were a recent contribution by an experimenter of Zor. Professor Jameson had remarked at the outset of hostilities that the result of the space war would narrow down to a battle of wits, a siege of brain power. Millions of the mines had been turned out and were sent spinning on orbits about the six worlds of Zor. Possessed of a substance which nullified their attraction to the ships of Zor, they existed as a menace to the Mumes. The most deadly feature of these invisible destroyers was the fact that they were too small to register rapidly upon the detectors of the Mume ships. Added to this, the mines sped unerringly for any large object which came within a radius of five thousand miles.

"But it is only a matter of time when they will discover the secret of the mines and the ability to avoid them as easily as your ships do," the professor

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prophesized. "See how easily we have counteracted the destructive rays about Mumed. Our ships bounce off their destructiveness."

"That fails to allow our ingress to Mumed past the barrier rays, however, We cannot as yet penetrate them with either space ships or power beams."

"We will accomplish that in time," said the professor, "and, besides, they cannot project beams through their own blanket of rays."

"That is true," 12W-62 agreed. "Scout ships have reported that tunnels are left open momentarily for them to unloosen destruction from the planet itself. The latter mode of offense is what they seem to depend upon mostly, for their fleet is small in comparison to ours."

"Have you heard of their locater veils?"

"Locater veils?" echoed 12W-62 in query. "What are they?"

"This is nothing definitely established as a truth. It is little more than rumor. One of our scout ships reported having lost complete track of several near by enemy ships. They disappeared from the detectors entirely, then reappeared."

"Would it stand to reason that their ships possess the faculty of throwing out such a veil in order to confuse the detectors of our ships?"

"Either that, or else the functioning of the scout ship detectors was faulty at that particular time."

"Our ships still possess the advantage of invisibility," reminded Bext, "though their detectors and knowledge of our accomplishment have cut down the advantage considerably."

"No one knows that any better than I do," said the professor. "What a time our ship had trying to avoid the hunting ships of Mumed while we were hemmed in from escape by their barrier rays."

"6D4, the tyrant of Mumed, is bent on imperialistic powers whic hknow no bounds," 12W-62 observed. "That, I learned well during my incarceration on Mumed."

"If 6D4 and the nucleus of his empire builders could be destroyed in one stroke, I believe the end of the space war might be accomplished in a single encounter," the professor surmised. "The Mumes are being enthused and goaded by 6D4 and his associates. Take their leaders from them, and a few defeats would bring them to terms. Aside from 6D4 and other figureheads among the machine men of Mumed, the Mumes are well beneath our intellectual plane, and without a directing intelligence their power is broken."

"IT sounds easy," Bext admitted. "Yet 6D4 is also aware of this fact, As I have stated before this, during my captivity on Mumed, I learned by prying into covert conversations of various Mumes, who believed their thoughts to be well guarded, that 6D4 was planning a secret, underground city, a subterranean recluse, as it was called in ancient days, where he and his principal consorts can direct the affairs of the planet."

"If we could only learn where this secret city is located," the professor mused.

"Even so, none of our rays could penetrate to the planet, and sneaking inside of the ray barrier with an invisible ship is out of the question, now that the Mumes have learned our secret. They are on the watch at all the ray-lock entrances for just such an act as that."

We might be able to disintegrate Mumed as our expedition did the world of the dying sun far out in space, but there is the neighboring planet of Ablen to consider. It would probably mean the death of every inhabitant, innocent sacrifices of the Ablenox to the fury of two warring worlds."

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"The Ablenox are not exactly neutral," said 12W-62. "They are neutral in actions, yet their sentiment leans in our favor, for the Mumes have treated them badly."

The planet Zor grew in size as their space flier left the vicinity of Grutet and headed homeward. Grutet and Zor were nearly in conjunction with the sun, Zor being the outer of the two planets. Beyond the orbits of Zor lay the outermost planets of Dompt and Ipmats, while within the orbital circumference of Grutet lay Poth and Trach, the two planets nearest the sun. Zor was the home world, the remaining five planets were under more or less artificial conditions, some of them inhabited by the organic Zoromes and nearly all of them peopled with the machine men.

The professor and Bext left the little space-flier in charge of several organic Zoromes after coming to rest in the shadow of a large city. It was obvious where the idea of metal tentacles had originated in the minds of the machine men. The organic Zoromes possessed six tentacles, a pair branching from each side of their bodies, a single tentacle in front and one in back.

The organic Zorome, who moored the ship securely, was typical of the flesh and blood species which supplied the machine men with perpetual material for new converts to their ranks. Accidents occasionally happened to the heads of the machine men, their one vulnerable spot which, unlike the rest of their metal bodies, could not be replaced. His six tentacles grew long and tapered to tiny tips, while from the lower section of his body grew four short, unjointed legs which terminated in three-pointed feet. A fringe of membrane grew across his head from cheek to cheek, while beneath and in front of this a prominent forehead shaded a pair of extremely large eyes, extremely large from the professor's earthly standpoint to say the least.

The Zorome possessed no nose whatever, though he displayed a diamond-shaped mouth. Breathing was effected through valves situated at the base of the fore tentacle. At a certain state of development, when a lifetime had commenced to wane, each Zorome was given a brain transposition to a machine.

Preparations were nearly complete for the first hundred or more ships of Zor to leave for the system of Mumed. This was the vanguard of the Zoromes, ready to unloose the first salvo of space war at the Mumes. Secure in the belief that their planet was invincible behind its protective covering of rays, which could not be penetrated by space craft, meteor or message, the Mumes had invited combat in the shadow of their own world.

The initial expedition to leave for Mumed was to test the space fortifications of Mumed and also learn of their offenses, a deadly errand of uncertainty. This time, they spurned invisibility of their ships, for this advantage meant little in space where ships were picked up by detectors. The advantage of invisibility lay solely in cruising low over the planet among the cities of the Mumes, and this, under the circumstances, the Zoromes did not expect to do.

The main fleet, representing thousands of Zorome fighting craft, would follow later after the experimental expedition of the first hundred ships. Departing from the outermost planet of Zor's system, Ipmats, cold, dimly lit by a far off sun, and the home of biting, raging storms, the ships of Zor spread out and raced off into the cosmos, towards the neighboring system of the Mumes. Ipmats grew small behind them, its horned crescent dwindling to obscurity, the sun of Zor becoming smaller, a tiny, glittering point of light, a star among stars, brighter only because of its much closer proximity.

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UNDER Professor Jameson's command were 6W-438, 473G-90, 56F-450 and others among the machine men of Zor, the last a stranger to him. Besides the machine men, there were four organic Zoromes, the entire crew numbering fifteen. There was room for more aboard the ship, but not too many were being sent on this initial flight into the enemy's territory, for it promised to be a trip from which few might return.

The sun of Mumed loomed close as the ships of Zor headed into the system past the outer planets. Ablen was in opposition to the sun as they passed its orbit. Beyond, Tanid's rough surface was visible in the thin, ragged crescent of its daylight dawn. Farther beyond and to one side lay Mumed.

The ships of Zor watched their detectors carefully for signs of enemy scout ships ready to attack and issue an alarm of their approach, but apparently they were not yet near enough to Mumed for an encounter with scout ships. The Mumes did not protect their entire system as the Zoromes did. The population and facilities of Mumed were concentrated wholly on one planet. It was their intention to spread their power and influence to other worlds after the eagerly anticipated downfall of Zor was consummated.

The ships of Zor moved onward. The first realization of impending disaster came in the disappearance of a ship far to the edge of the widespread formation. It went out in a brilliant flash which left its recent position on the detectors of its sister ships a blank spot.

"A long range shot!" was 6W-438's lightning resumé.

"If so, they were lucky!" the professor exclaimed. "There's no ship on our detectors within a half million miles!"

"What about a small scout flier?" queried Hodze, an organic Zorome. "They register only at nearer distances."

"Two hundred thousand miles, then, at the most," stated the professor. "That is a long ways for accurate shooting at erratic moving targets such as our ships. If the Mumes are——"

Three more of the Zorome ships disappeared rapidly, one right after another. A ship not far from the professor's craft was struck.

"That's no chance!" cried 56F-450. "That's accuracy!"

To the dismay of the bewildered Zoromes, another ship burst into pieces. Immediately afterward, a graze shot tore a ship half apart, leaving it behind the main body of space craft which rushed onward. Two ships dropped behind to pick up the machine men who still survived among the wreckage. Organic Zoromes, unless space-suited, were doomed in this instance.

"Do you suppose we are being fired upon from Tanid, 21MM392?" came the query of 142V-06 from another ship close by. He referred to the uninhabited world between Ablen and Mumed.

From the professor's memory leaped a recent conversation with 12W-62. The locater veils. That was it. He immediately radiated his opinion of the situation to 142V-06 and the other ship commanders. He realized, with the speed of thought born of dire necessity, that, to find the ships of Zor the Mumes must penetrate with detector beams their own locater veils.

"PUT on the rays! Fire back along their detector beams! Place our own detectors in ultra-reverse; then fire back whenever they register!"

Several more of the ships were being shot out of space by the undetectable enemy. Most of the shots were direct. Others were off-center on graze shots. In the latter case, the survivors were quickly transferred to other ships. One thing, of which the Zoromes were now

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positive, was the fact that to find them the nearby ships of the Mumes could do so only by penetrating their own locater veil. This gave the Mumes but a slight advantage beyond the surprise of their first attack, for the Zoromes were releasing charges of deadly power, whenever a detector-beam found them through the locater veil.

It was a mark of credit to 6D4, this locater veil, which was a direct retaliation to the treatment of invisibility the Zoromes had given their space ships, but 6D4's mental genius had reckoned without consideration of the resourceful characters of the Zoromes. The space encounter was no longer as one-sided as it had first proved to be. Though his detector screens remained blank, other than for the location of his own ships, the professor, through a transparent port of the observation room, saw the effects of the ultra-reverse attack. Far out in space, tiny flashes, like the distant travels of meteors through the upper air strata of a world, occurred intermittently.

"We have drifted off the main course of the fleet!" cried one of the machine men.

The professor returned to the control room. It was so. Their faculties had been too engrossed in wiping out the menace which had threatened them from the undetectable ships to notice their wide divergence from formation.

"Circle back!"

The screen which revealed to them the location of their own ships went suddenly blank. For a moment, Professor Jameson was both perplexed and apprehensive. Then he realized. His ship was cut off from the main body by a locater veil of the enemy. His ship was in the midst of the veil.

"Slow down! We may be close to one of their ships! Stand ready to fire back along their beams!"

A crashing jolt sent Professor Jameson to the floor of his space ship. His metal head clanged hard against the floor, and he lost his senses momentarily. Recovering from the shock, he found himself surrounded by his companions. The organic Zoromes wore space suits. Tight fitting, scarcely noticeable, temperature equalizers were worn by the machine men. The professor, too, found himself equipped with one. He had been "out" longer than he had thought.

"What happened?" he queried. "Were we fired upon?"

"We collided with a ship of the Mumes. You were knocked senseless. A hole has been torn in our craft, and the air has leaked out slowly."

"Is the control room intact?" was the professor's swift interrogation.

"It is partly demolished," came 56F-450's discouraging reply. "We are helpless."

"Where are we now?"

"Drifting in the direction of Tanid."

"At what speed?"

"That is unknown. The gauges were destroyed."

CHAPTER II

PROFESSOR JAMESON glanced hastily out of the nearest port. Tanid, the world between Mumed and Alben, loomed large. They were far removed from the scene of recent conflict. The professor made his way to the wrecked control room. A rough hole yawned in the center of an oblong indentation, permitting the light from brilliant, far off stars to shine through the gap. He wondered if the enemy ship, which they had rammed, had fared the same.

The entire crew stood by his side in the wrecked control room of the helpless craft, ready to follow his least sug-

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gestion. For a moment he pondered the situation. There seemed little to do for the time being except to trust to fate. The machine men and their organic brethren were not confirmed fatalists, however, even though they recognized the numerous byways of destiny.

"We can land on Tanid, if our drift is in that direction," said the professor. "Of course, there is a danger of crashing in the event that our gravity brakes prove unmanageable. I wonder if——"

The rest of the professor's contemplation was interrupted by the vibrant thought waves of 596L-29, whose discovery gave a new aspect to the situation.

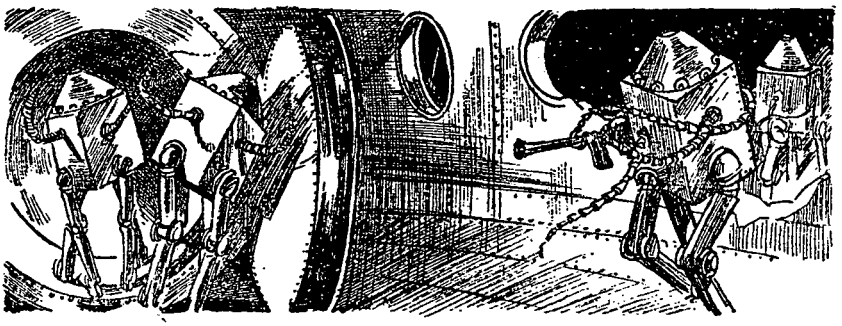
"An enemy ship is coming close!" was 596L-29's startling announcement from the place where he peered intently through the jagged rent in the control room. We are lost!"

"We are if they see anyone aboard!" the professor exclaimed. "Out of sight—quick—everyone! Put a guard on your thought waves!"

The Zoromes hid themselves, Professor Jameson fearing at any moment a destructive ray might flash across the wrecked ship. The suspense was nerve wracking even to the machine men, and especially so to the organic Zoromes. The Mumes, seeing the damaged ship without traces of occupancy, might believe it to be a derelict of the dead. So the professor reasoned from all points of view.

Peering cautiously from his spot of concealment, 6W-438 saw something which not only surprised him but set his brain aflame with possibilities. Covertly, he signalled the professor and the rest, apprising them of the fact that machine men of Mumed were preparing to board the wrecked space ship. Several of them were heading for the rent in the ship's side, the most obvious and least complicated mode of entrance. The professor rapidly endorsed the plan which sight of the Mumes had occasioned in the mind of 6W-438. The Zoromes hid themselves.

On board the ship of the Mumes, the organic pilot and several of his companions waited for their mechanical brethren to return from the wreck which had drifted across their detector plates. Initial impulse to destroy it had yielded to the desire to search it for secrets of Zorome defense and offense. It was queer, thought the eight-legged Mume, that he had received no communication from his seven metal comrades who had entered the wreck. Possibly, he opined, this might be due to a mental nullifier of the Zoromes, another of their equipments for their space ships. That was well. The metal Mumes, who had gone aboard, would learn its secret and 6D4's empire-builders would boast another advantage over the Zoromes.



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FINALLY, a metal figure stood limned in the jagged hole of the wrecked space ship. Behind the first, appeared another. The two machine men launched themselves with gentle pushes from the wreck straight for the air lock. Five more left the wreck and swiftly followed. They were strangely silent, much to the increasing curiosity of the organic Mumes who had been left on board. Rapidly, the pilot worked the controls of the air-lock to give the returned machine men an entrance.

The return of all seven brought forth a query from the artilleryman, four of his eight appendages hanging eagerly over the ray release, direction indicator, distance estimate and power control.

"Shall I destroy the derelict?"

"No," came the brief reply.

The machine men hurried into the space ship clutching their metal-eating pistols. They also carried several of the ray guns belonging to the Zoromes.

"What did you find?" asked the pilot, still watching the wreck.

There was no answer. Instead, metal tentacles gripped the pilot by his neck and slowly twisted his head off, pulling him from his seat where he struggled and kicked convulsively for an extended moment on the floor of the space ship. Meanwhile, more of the machine men had attacked the stupified artilleryman and his companions.

"Take over the controls of the ship, 56F-450! The rest can come out of the wreck now!"

Following this last remark, more machine men, this time in company with organic Zoromes who were space-suited, made their way from the derelict to the waiting ship of the Mumes.

"We took over the ship without a single loss, 21MM392," 6W-438 enthused. "How easily we overcame the machine men of Mume with our ray guns, when they found that we had made ourselves immune to their metal-eaters since our last trip to Mumed."

"Where shall we go?" 56F-450 queried.

"We shall join our fleet if we can find it."

56F-450 read their position. They were far off the course the ships of Zor had taken. In the captured craft of the Mumes, the Zoromes headed for the fleet from which they had recently become lost. Professor Jameson believed the ships of Zor to be somewhere out in space at right angles to Tanid.

"They will fire on us!" warned 6W-438. "This is an enemy ship!"

"When we come within range, we must communicate with them," stated the professor.

They found their own fleet sooner than they expected. 56F-450 soon picked them up on the detector plates. A good many of the ships had been destroyed in battle with the Mumes, or else the initial fleet had broken up into smaller contingents, the professor found.

"Let them know who we are!"

From 2B-991 at the communicating signal system, an emanation of mingled surprise and dejection reached the professor.

"The communicators are not attuned to our own space craft—only to the ships of the Mumes."

"Look!"

56F-450 pointed to the detector fields where small dots were closing in upon their position.

"Battle formation!"

The professor grasped frantically at an overhanging lever above the controls. Instantly, the dots on the detector field disappeared. Professor Jameson had spread the locator veil.

"That was close!" cried 6W-438. "They think us enemies! We shall be blown to bits if we stay here!"

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"Is there no way we can tell them who we are?" asked one of the organic Zoromes desperately.

The professor expressed negation. 56F-450 needed no instructions. The situation was clearly diagnosed by all. They were in flight, fleeing from a frightful danger at the hands of their own comrades, who were intent on blowing them out of existence. Still in the shadow of their own locater veil, they shot the ship clear of the menacing ships, well beyond the range of detection.

"There is only one thing for us to do, unless we wish to head back for Zor, and that would be just as difficult in regard to our safety as approaching our own fleet here," offered the professor. "We must play a lone hand, posing as Mumes. Both fleets will be against us, and we shall be doubly in danger, yet it is the most we can do."

"Where now?" asked 56F-450.

"Head for Mumed."

They were well on their way past Tanid when an amplified thought wave forced itself in upon their consciousness.

"What are organic Zoromes doing aboard your ship? Are they prisoners? How did you get them?"

For a moment, the Zoromes stared at each other dumbfounded. There came another query.

"What are your letters?"

The professor, with waving tentacle, pointed mutely at the detector fields. Four ships were shown upon it.

"Mumes!" cursed 6W-438. "Now we are in for it!"

"How can they see us?"

"The televisor! Snap it off!"

56F-450, unfamiliar with the ships of the Mumes had overlooked this telltale possibility. Quickly, he broke visual connection with the four ships.

"Turn on your televisor!" came the snapped command. "Come alongside us at once!"

"Throw out the locater veil!" was Professor Jameson's expression of his disregard of the Mumes.

56F-450 did so. For a moment, the spots on the detector plates faded from view, but they soon returned in full strength. 56F-450 looked to see if the lever had slipped back. No. The locater veil was spread to its full intensity. The Mumes evidently knew how to nullify its baffling effects.

Professor Jameson watched the four ships on the detector field. They were in close pursuit.

"Take a turn around Tanid!" he ordered. "Then head for our fleet!"

"We shall be caught between two fires!" warned 6W-438.

Tanid loomed large. The ships of Mumed crept nearer. Their operators, more familiar with their own ships than the Zoromes, were getting better speed and facile maneuverability. Desperately, 6W-438 opened fire on them as they came closer. There were no results. Unharmed, the four pursuing space craft crept nearer. They made no attack.

"Nullifiers," the professor summed up the situation. "It would certainly be a valuable bit of information for us. They are able to nullify their own attack but not ours. If we only had one of our own ships now."

"If there were only some way of coming to grips with them!" exclaimed 6W-438 vehemently. "We are entirely at their mercy!"

"They could have annihilated us before this," mused the professor. "They want us alive for some reason or other."

"Like they wanted Bext!" was Hodze's reminiscent remark.

The Zoromes had shut off the communicator. The locator veil, ineffectual as it was, they also turned off. Suddenly, 56F-450 felt a strange influence guiding the ship. The control no longer responded to his touch. The Mumes

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held them in their power. Their speed was rapidly decreasing, and though 56F-450 fought to retain control it was no use. He announced their condition. Soon after, there came a metallic bump which shook the space ship from stem to stern. The Mumes had clamped hold.

Professor Jameson looked at the detector plates. The foremost of the enemy was at grips with the space ship manned by the Zoromes. The three remaining space craft lingered in the rear.

"They will probably tow us back to Mumed as prisoners," ventured 93S-404.

"They are coming aboard!" cried Hodze, pointing to several Mumes entering the air lock.

"Keep them out!"

56F-540 seized the controls governing the air lock, yet in alarm and consternation the Zoromes saw the door of the air lock rolled aside.

"There is no use!" exclaimed 56F-450. "They have the operation of the ship entirely in their power!"

THEY stood waiting with weapons ready, waiting for the invading Mumes. The first machine man through the door was engaged by 2G-64. Behind the first came others from the enemy ship. The Zoromes rushed for the entrance of the air lock, weapons unleashed, ready to fight and hold off the Mumes, while those few who had already entered were engaged with machine men of Zor. The Mumes were evidently confident of recapturing their own ship, reluctant to destroy it, even though capture meant sacrifice. The Mumes possessed less ships than the Zoromes, one of the reasons they contrived to draw the war to their own neighborhood.

There came a sudden, shrill warning from one of the other ships which lurked close. It came direct, not from the communicator, for the latter was closed off.

"Zorome ships are coming!"

Professor Jameson and his companions experienced a sudden thrill of enthusiasm which was short lived. A thunderous, jarring roar shook the embraced ships. They were torn apart and hurled about in space. One ship was utterly demolished. The ships of Zor, creeping up unsuspectingly upon the five enemy ships had found an easy target in the two ships clinging together. This had inspired the prospect of a double hit.

The ship containing the Zoromes and their combatants spun dizzily towards Tanid, its occupants dazed, dead or else dying. A large piece had been torn from the cruiser. Tanid grew larger, its topography clearly distinct, the space ship falling rapidly into the planet's attraction, unnoticed by the handful of Zorome space craft which had sneaked upon the Mumes, catching them unawares.

Tanid possessed an unbreathable atmosphere to both of the organic species, Zoromes and Mumes. Respiration on this world meant a quick end. Entering the thick envelope of air, the ship reduced its mad speed. Several of the gravity brakes were still in working order, and the increasing air pressure automatically threw them into action. The functioning of the gravity brakes, however, due to the damage done by the Zorome sharpshooter, was erratic, and the ship came down none too lightly in a mountain pass just outside the daylight-half of Tanid. The light was gradually creeping in the direction of the fallen ship.

An organic Zorome raised himself amid the silence and wreckage and gazed upon devastation and death. He looked up to see the stars twinkling at him through a ruptured seam above his head. Small wonder that he had not been crushed and mutilated as were many

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around him. A stillness of mind persisted all about him. A grayness suffused the sky. Dawn broke quickly on Tanid. In the gathering light, gloom sped swiftly, and the Zorome looked about him.

Machine men lay broken and smashed, their metal legs and tentacles twisted and dented into grotesque, unnatural attitudes. Mixed with these were the slumped, inanimate forms of organic Zoromes who had met their end, even as had been grimly foreboded when the fleet left Zor. Hodze, the organic Zorome, found that two of his tentacles were broken. They pained him with dull and throbbing persistency and stabbed at his consciousness whenever they moved him.

Not far from him lay 21MM392, his head, half ripped from his metal body, having torn away a section of the cube's upper mechanism. A leg was missing, and two of the remaining three lower limbs were bent in under the cubed body with its jumble of twisted tentacles, one of which was plainly torn free of the metal body. With a confusing and jolting realization, Hodze saw that not all the machine men were present. Several had evidently been lost in space at the impact of the shot which had torn away a large part of the ship. They may have drifted away from the wreck while it rotated towards Tanid.

EXERTING his mental perceptions, Hodze sent a call to the machine men. Perhaps some of them still lived. There was no reply. Many of the machine men lay with their heads crushed or dented. There existed no doubt but what they were dead. Others among the machine men he believed might be alive yet temporarily stunned. Again he marvelled at the fact that he, a flesh and blood Zorome, had so miraculously escaped death in this terror of destruction which had swept over them.

His first thoughts were of his commander, 21MM392, whose metal body lay wrecked a short distance away. Slowly, he hobbled over beside him, conscious that two of his lower limbs were bruised and sprained. He sought vainly for communication with the fallen machine man, searching the other's mind. Of one thing Hodze was certain. The machine man lived. Yet his brain was in a dazed, unconscious condition. 21MM392's thought impressions were actually fantastic, bordering on delirium. Scanning the professor's mind, Hodze received mental perceptions of weird, four-limbed people on whose heads there grew, in place of membranous fringe, a thick, hirsute growth. They wore strange accoutrements, too, of varying shapes and colors. They were evidently characters from some queer world which 21MM392 had visited in the past, Hodze reflected.

The sun topped the horizon, reflecting brilliantly against several tiny specks far up in the atmosphere of Tanid. Whether the approaching space ships were friends or enemies, Hodze knew not, but he suspected strongly that they were Mumes. It was not like any of the Zoromes to land on Tanid. The Mumes probably possessed lookout bases on Tanid, on this planet used only by machine men. If they were Mumes, he knew what to expect. It would mean a quick end for him and those of the dazed machine men of Zor who still lived.

The thought suddenly struck Hodze that a few of the Mume machine men might be alive. Like 21MM392, they perhaps were only unconscious. As if to substantiate Hodze's opinion, one of the Mume combatants who had recently entered the ship while out in space staggered ungainly upon his bent legs, then fell backward again where he attempted to lift himself with twisted tentacles.

Hodze possessed an astute mind, and an idea suddenly occurred to him which

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made him snatch up one of the metal eating pistols of the Mumes. Would the Mumes who came in the approaching ships, if they really were Mumes as he suspected, perceive the vague thought imprints on the minds of 21MM392 and the others who lived, and distinguish them as Zoromes? He doubted it. The mental perceptions of the Mumes were below the standard of the Zoromes. And after all, this was a ship of Mumed.

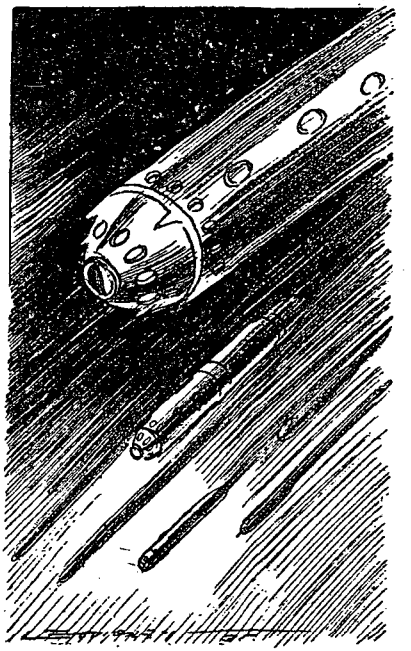
Again, the metal Mume tried to rise, slowly collecting his confused thoughts. Hodze, his mind set, levelled the metal eater and fired. No sound issued from the pistol. There was no flash, no ray of any kind, yet upon the metal head of the floundering Mume there appeared a dark, round cavity which spread and grew deeper. With several spasmodic movements, involuntary, the Mume fell backward, dead. The metal eater had penetrated his brain pan.

The space ships fell closer, flitting across the vision of the space-suited Hodze who glanced upward through the ruptured hull of the space ship. The Zorome saw that his suspicions were confirmed. They were Mume ships coming to investigate their fallen cruiser. He knew he must hurry if he were to destroy the remaining Mumes. He looked confusedly among the recumbent machine men. They were so much alike that he could find no distinguishing characteristics to differentiate between Mumes and Zoromes. He had recognized the unconscious 21MM392 only by familiar scratches on his metal body. Ordinarily, machine men identified each other mentally.

Hodze, for a moment, was at a loss as to what he might do. He dared not fire at those metal heads he suspected as belonging to Mumes because of the omnipresent doubt that they were possibly Zoromes. Revelation sprang suddenly out of his subconsciousness. The Zoromes had immunized themselves to the metal-eaters of the Mumes. He had been too engrossed to have thought of it before. Without further hesitation, he levelled the pistol in turn at all the metal heads in the wrecked ship, regardless of friend or foe, or whether the heads were smashed, only dented or intact. The metal heads of the Mumes were immediately susceptible to the metal-eater, while the heads of the machine men of Zor remained unaffected.

The ships of the Mumes had landed, and now Hodze, who had finished his grim work, waited for their arrival, a definite idea in mind, to terminate his work. Throwing down the metal eater of the Mumes, he seized one of the ray guns used by the Zoromes.

The investigating Mumes, entering the wreck, stumbled over two of their num-



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ber in the air lock, whom Hodze had overlooked. At the time the two locked ships had been fired upon by Zoromes these two Mumes with another of their companions had been situated in the air lock, preparatory to entering. A wide, gaping seam in the floor of the air lock testified to the probable, distant whereabouts of the third metal Mume.

Without stopping to distinguish whether the two machine men were alive or dead, the Mumes hurried into the main compartment of the wrecked space ship. They were just in time to see a space-suited Zorome level a ray gun upon the wrecked body of a machine man whose head was partly torn away from his metal body. The ray flickered over the cubed body in the direction of the head, leaving a torn and fused path. Before it reached the helpless machine man's head, one of the Mumes released a charge of destruction, which withered the organic Zorome into charred, smoking residue.

Of all the martyrs to the cause of Zor during the space-war with the Mumes, there was none greater than Hodze who had chosen for himself a brilliant end.

CHAPTER III

WHEN Professor Jameson collected his senses, he was no longer in the wrecked space ship. Without tentacles or legs, he stood on a shining, new cubed body to which his metal head was fastened. Looking about him, he surmised that he was in the assembling room of an outfitting department on Mumed. Almost instinctively, he realized that he was on Mumed, and he immediately placed a guard on his thoughts. How had he come there? Did the Mumes know him for a Zorome? This was not the metal body he had known. It was a new one. The last thing, he recalled, was the jarring crash aboard the ship of the Mumes following a report that Zoromes were coming.

A metal Mume approached him, carrying six metal tentacles, his body girdled with various tools and implements. Behind him came another Mume carrying four metal tags. The professor's brain was alive with questions, yet resolutely he repressed his curiosity.

"How do you feel?" queried the Mume. "We thought you would come around all right."

"I seem to be all right," the professor replied.

"You must have received quite a heavy rap, but you are lucky. Most of you on that ship either died in the crash on Tanid or else were killed by one of your captives, who survived the crash."

"We were attacked out in space by a ship of Zor," was the professor's honest statement. "It was then that I became bereft of my senses, for I recollect nothing which happened after that. What of this captive you mentioned?"

The Mume told him how help had arrived just in time to save him from the ray gun of an organic Zorome. This fact puzzled the professor. It failed to make sense. The Mumes really believed him to be one of them. Very well, he would let them remain thinking so. But the Zorome who had tried to kill him. Had he, too, believed the professor to be a Mume? He dared not ask too many questions.

"Am I the only survivor?" the professor ventured.

"No—three of you survived—4N7, 2H6 and yourself. Their mechanical injuries were similar to yours."

"Where are they?" the professor asked, masking his sudden apprehension.

"2H6 has been placed with one of the ships which came to investigate the wreck. All he needed was two tentacles and a leg. He recovered his senses

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quickly. 4N7 is in the subterranean city of 6D4, where you are soon to be taken."

Professor Jameson did some rapid thinking. 2H6 was aboard a space ship. He had little to fear from him. He might never come back to identify the professor as a machine man of Zor. But 4N7 existed as a menace to his safety. 4N7, on seeing the professor, would brand him as an imposter, stating that he had never been aboard the ship of Mumed at all. And the professor knew that he was to be taken where 4N7 was now located, the secret city of 6D4. So the rumor of the subterranean city was an actual fact. The professor was not surprised at the matter of fact disclosure. It was evidently a development of the Mumes since Zoromes had last visited the enemy world in two invisible space ships.

"Who are you?"

This question took Professor Jameson by surprise, but he answered quite readily, "9Y1".

With new limbs and a new body, the professor became known to the Mumes as 9Y1, apparently one of their number. An airship whisked him rapidly towards the secret city in company with several more machine men. It had been the initial intention of the professor to escape at the first opportunity, but now that the Zoromes would not be long in starting their great drive, he readily saw that his secret presence on Mumed might serve for a greater purpose than if he were in command of a ship in the space fleet.

The airship dropped swiftly for a section of open country, a bit too swiftly for safety it seemed to the professor. He looked sharp for signs of a tunnel opening but saw none. Evidently, it was cleverly concealed. The ground rushed close. Still the airship clung to its swift momentum without abatement of speed. For a moment, fear clutched at the professor. He felt sure they must strike unless their terrific pace was slowed instantly. Even then, the sudden shock would throw them off their feet. And then they struck. But there was no impact. They kept going. In stupified surprise, the professor stared out into translucent grayness. A near by machine man sensed his amazement.

"IT'S evident you've never been in the city of 6D4," he said. "Everyone who enters it in this manner for the first time is stricken with wonder. Where you believed you saw ground there was no ground, only a cavity, the entrance to the city. The grayness you notice outside is a gas with which the upper reaches of the tunnel have been filled. Seen from above, the gas gives an optical illusion of a complete landscape."

Professor Jameson marvelled at the cunningness of it. 6D4 certainly had the service of talented minds. He felt that he would have to guard his thoughts more carefully against these more intelligent Mumes.

The tunnel was approximately a mile in depth. The same Mume who had explained the tunnel's entrance to the professor now took it upon himself to explain the tunnel's armament which lay ready for any hostile ship that might contrive to elude the rays surrounding Mumed and find the secret city.

"Destructive rays line the tunnel, ready to be unloosed instantly. Every ship which drops into the tunnel is looked into by an invisible light which reveals everything and everyone."

Quite unexpectedly, the ship floated down into the city. The metropolis of 6D4 was built on the floor of an immense cavern. Professor Jameson estimated the proportions of the cavern to be nearly ten miles in length, half as

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wide, and nearly a mile high. It was brilliantly lit with sun lamps, like those on the inner side of Grutet's chromium shell. The airship headed for a high building, coming to a stop on its landing roof.

"This is the barracks."

Professor Jameson had been in constant fear of revealing his ignorance of their ways, but the Mumes seemed to take it for granted that a newcomer to the subterranean city would act a bit queer, the routine there being as different as the location and appearance of the city.

In the many nightless days which followed, the professor learned much. He found, however, as a general thing, that the movements of the Zorome forces were kept secret within the city. Only now and then did information leak through some high officer and into the barracks. Professor Jameson had not been there very long before his general aptitude was noticed, and he was promoted in rank. His only fear was the possibility of one of the other two survivors of the wreck on Tanid meeting him and denouncing him as an imposter. The Mumes seemed to possess no comprehensive records of their machine men, and for this the professor was thankful.

One important discovery the professor made was the fact that the Mumes no longer feared the space mines which floated about the planets of Zor. The Mume ships were equipped with metal hollow spikes, needle sharp. Whenever a space mine started for one of these ships, the nearest spike directed that way became excited by the proximity of the approaching space bomb. A sufficient amount of counter-explosive was automatically ejected from the spike to meet and explode the onrushing mine several hundred miles away.

This advantage had been obtained through dangerous experiment. One of the Mumes had braved the possibility of instant annihilation and had approached several of the mines with special apparatus to perform the ticklish business of snaring them. Brought to Mumed, they were placed under careful analysis, the ultimate result being the sharp spikes on the space ships of Mumed.

Time passed. Scanty reports which filtered into the city of 6D4 disclosed the fact that the Zorome fleet was hammering away at the strongholds of the Mumes and battling with the latter's ships wherever they were found. So far, it had been a blocked deal, neither side gaining much. The Zoromes, however, were on the offensive. Professor Jameson knew that his fleet was growing larger all the time as the various contingents joined it from Zor. The entire forces of Zor would be marshalled, he knew, when current experiments were finished, in regard to the impregnable barrier of rays which guarded Mumed so effectively.

He was certain that none of the Zoromes had learned the secret of the underground city, and here lay the crux of the entire situation. Knowledge of the city's location would eventually bring about a concentrated engagement fit to test the supremacy of the two factions. The skirmishes and minor battles which were taking place amounted to little, as far as the outcome was concerned. The Zoromes desired to end for once and all the menace of 6D4 and his empire builders. On the other hand, 6D4 was content to hold off the Zoromes at the very gateway of his world, until he felt that they were maneuvered into a position where it would be opportune for him to strike swiftly and deadly. In the meantime, he planned to hold them as powerless and ineffective as possible.

Professor Jameson looked for an opportunity to communicate with his fellow machine men, but no chance offered

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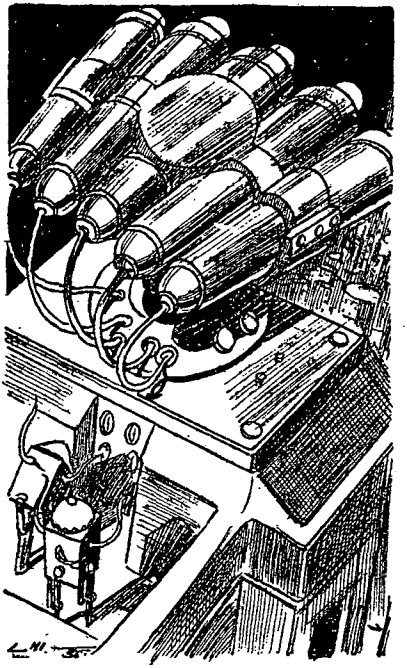

itself. He waited patiently for the time when he would be sent out with a space patrol. 6D4 was keeping much of his fighting strength in reserve, however, and the professor was among these reserve forces.

ONE day, a superior officer dashed into the barracks of the subterranean city. Professor Jameson and the other officers were galvanized into excitement and the action by his electrifying announcement.

"The time has come!" he cried. "All is ready to prepare for delivering the great blow!"

Then followed graphic relation of 6D4's mighty plan which was to stagger Zor's power to its very foundations. The great fleet of Zor was to be destroyed in one fell swoop with the latest brain child of 6D4 and his clever minions, the enveloping ray.

"Are we to be sent into space to engage the enemy?" the professor inquired hopefully, looking for an opportunity to quit the subterranean city and notify his fellow Zoromes of their impending danger.

"Some of us!" the officer replied. "But you're not! I have a safer and much more important position here in the city for you!"

The professor's hopes fell. In the inner recesses of his own mind, he was desperate. He must get out of the city and warn his fleet. The commanding officer was giving orders. Men scurried everywhere, preparing to take off into space for the big battle, ready to fulfill the initial portion of 6D4's plan. Only Professor Jameson and a few officers were left.

The commanding officer took the professor to a balcony overlooking the subterranean retreat of the Mumes and pointed across the city to a high domed building, the top of which was shaped into a gigantic cylinder. On four sides stood tall minarets, rising to three-quarters the height of the cylinder superstructure of the central dome. The minarets were joined by four narrow bridges.

"There is the weapon to destroy the fleet of Zor!" he exclaimed with a dramatic wave of his metal tentacles. "And you are to have a place at its mechanism, to help in the destruction of the enemy fleet!"

"Me?" Professor Jameson felt overwhelmed at the revelation. "Am I to unloose the destruction?"

"Not you alone," the commander informed him. "There are many over there like you. 9G2 has called for an assistant. I recommended you because of your aptitude. We'll go over there now."

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Entering an air car, they were taken to a small landing platform near the minaret where the professor was to assist 9G2. On the landing platform beyond the next minaret, the watchful eyes of the professor perceived a small space flier. The professor, entering the minaret with the commanding officer, was confronted by 9G2 whom he learned was an old scientist of Mumed before his brain transposition to a metal body. The commander left, and the old scientist commenced explaining the surrounding mechanism to the professor.

"This produces the enveloping ray," he explained, waving his metal tentacles in a gesture which took in the four minarets and the huge, central structure. "Most of the operators are in that dome. The rest of us are stationed in these minarets, operating the subsidiary power supply, as we are directed from the main control chamber over there."

Professor Jameson looked down into the dizzy depths below him. 9G2 continued.

"For the purpose of better concentration of our mental faculties, these minarets have been made thought-proof. In this way, we shall suffer no interruptions to our work when the supreme moment arrives. We are stationed here together. 7X5 is stationed over in the minaret to our left along with his assistant, and on the other side of us in the minaret to our right 4N7 is posted alone. Diagonal to our——"

"4N7?"

"Yes. Do you know him?"

"Why—I have heard of him—that is all."

"Come, I'll take you over to see him."

"Not now," the professor expostulated. "I wish to learn my duties."

"Sure enough," 9G2 approved.

The professor found himself in a dangerous predicament. He had easily avoided 4N7 up until now. 4N7 was in the next minaret. Soon, they must meet, especially, he believed, if 4N7 learned of his presence there. A short conversation would soon convince the Mume of the professor's real identity, or at least he would be suspected. The professor forgot his troubles momentarily to pick up the thread of the scientist's discourse.

"—and the fleet of Zor will find itself hemmed in by this great, globular ray thrown completely around it. Then we shall start compressing the inner confines. There will be no escape for them. To dive into the walls of the enveloping ray will only mean quicker annihilation. To remain passive will mean the same final result when the ray closes up into a small sphere. There is no nullifier yet invented for this ray. It is one which 6D4 has smartly reserved for this particular purpose. With the exception of several convincing tests, it has never before been used."

"But how are we to maneuver the entire fleet of Zor to this locality?"

"Not the entire fleet, but nearly all of it," amended 9G2. "Our ships are going out to meet the fleet of Zor which is approaching in full force. A terrific battle will be started; then will follow the gradual retreat of our forces. The Zoromes will naturally follow up the 'advantage,' being much stronger than our fleet. When they are lured to this locality, we shall send out our enveloping ray."

Professor Jameson stood aghast at the frightful fate which lay in store for the Zoromes.

"ALREADY," said the Mume scientist, "*our fleet is going out to meet* the ships of Zor which our scout fliers have reported are on the way here from Zor."

9G2 took the professor through the interior of the minaret to explain the

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various features of its mechanism. The professor gazed upon a labyrinth of machinery, dials, television squares and intricate apparatus.

"Underneath these four columns is stored the power necessary for the operation of the enveloping ray."

"What is this large communicator for?" the professor asked, waving a tentacle towards a communicator of greater power than the ones attuned to various districts of the subterranean city.

"It is one of our special duties here in this station to keep our ships posted concerning operations. We want to be certain they are outside the field of destruction when we cut loose with the ray. Then, too, they must know when and where to maneuver the enemy fleet to the best advantage.

"Are we attuned to a single wavelength?"

"No. The communicator is adjustable. Our ships are all on the same wavelength, however, so there will be no trouble or unnecessary repetitions."

In this manner, Professor Jameson learned of the plot to destroy the great fleet of Zorome space-ships bent on breaking the belligerent menace of the Mumes. Under the tutelage of 9G2, he acquired within a few days the complete knowledge necessary for him to take orders from the central control room beneath the cylinder and execute them satisfactorily. 9G2 warmly commended on his aptability.

During the time in which the fleet of Mumed was engaged in drawing the full force of Zorome ships into the field of the enveloping rays influence, Professor Jameson waited, with the patience of a fatalist, for the coming of 4N7 across the narrow bridge joining their minarets. Then he would be revealed as an imposter, a spying Zorome. But, strangely, 4N7 did not come. 9G2 went over there for various reasons several times while the professor apparently concentrated his attentions upon some problem or duty in the minaret. And from the minaret to their left, 7X5 came over occasionally to talk over the impending operation of the enveloping ray. Those chosen for the guidance and operation of the enveloping ray were kept posted concerning the swift succession of events occurring in space in and around the planetary system of the Mumes.

The Mumes had gathered their fighting ships and were heading to meet the cautious, approaching fleet of Zor, strung out across several million miles of space. The concentration of Mume space-power had sent all ships of Zor, lurking in the vicinity, scurrying discreetly from Mumed to less exposed positions, some of them hurrying to meet the gigantic fleet from Zor and spread the news. Behind these scout cruisers of Zor which fled from Mumed to meet their fleet came the full power of the Mume space ships, slowly yet purposeful.

What 6D4 had anticipated and counted upon actually occurred.

The Mumes engaged the fleet of Zor from a tantalizing distance. Immediately, the Zoromes slowed their pace as the ships from behind came up to gather in closer formation and start a flanking movement upon the Mumes. Zor was concentrating the full strength of its cosmic power to meet and destroy the space guard of Mumed. After a bit of skirmishing with the advance battle formation in which few ships on either side were lost, largely on account of the Mume locater veils, the Mumes backed off in a slow, firing retreat.

The ships of Zor fell into pursuit, determined to overtake and destroy the enemy or else trace it to its stronghold on Bexn and bombard the defense.

"They're nearly here!" cried 9G2 in high glee. "See!" He rushed to the detector fields and pointed to a myriad

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of dots on the screen, all merging and partly obscuring each other. "Our ships! The enemy is not yet visible!"

APPREHENSION struck the professor. Soon, the Zorome space fleet would be no more. A powerful, grinding noise vibrated throughout the minaret. Through a small, transparent facing of the tower, Professor Jameson saw quivers of blue light sent shimmering above the massive cylinder. The Mumes were getting ready to enclose their enemies in a projected sphere of death. The professor ran out upon the bridge. Down in the city, excited crowds surged and milled, both machine men and organic Mumes, the latter's squat, many-legged bodies contrasting strangely with the glistening metal physiques of the machine men who predominated in numbers. All were awaiting eagerly the tragic drama to be enacted—the wholesale destruction of Zor's entire space-fleet. The remaining stragglers outside the nucleus of the invading fleet would be dealt with afterward, when the enveloping ray had finished its grim, efficient work.

9G2 called to his assistant.

"You seem nervous, 9Y1. Calm yourself. We have much to do. Nothing will go wrong. We have only to follow orders."

The professor took a fresh grip on himself. He was relaxing his mental vigilance, and that would never do. He felt thankful that 9G2 was not of a suspicious nature. For a moment the seriousness of the situation out in space beyond the ray-blanketed world of Mumed had made him forget the peril of his own position with its accompanying necessity of inner thought repression.

He took his seat by the giant communicator. Over the small instrument above his head came general orders for the fleet. He relayed them. Those in the secret city listened. All were able to hear the messages sent out into the cosmos to the ships of Mumed. 9G2 watched the chart anxiously.

"It won't be long before the enemy will be in line for the ray. The ray can only be projected a half million miles into space."

A deadening sensation seized the professor. Under his immediate attention, ruination was about to fall passionless upon his adopted world. Zor was about to be blighted by a terrific death blow at its citadel of defense, the immense space fleet. Mechanically, he sent out the messages, a bit slowly, inwardly reluctant to spur the deadly events which were about to spell doom to several hundred thousand of his fellow machine men and their organic brethren.

"9Y1, are you feeling fit?" asked 9G2 suddenly. "Are you fully recovered from the shock of that space wreck on Tanid?"

"I am well, I believe."

"You seem a trifle slow, uncertain. It is unlike you."

"I am sorry," the professor replied. "I shall try and speed up."

"Do so. The central operators seem a bit impatient."

The rumbling in the massive cylinder grew to a high pitched drone.

"There goes the ray!" the old scientist exclaimed.

Professor Jameson watched the enveloping ray from his instrument board. It commenced leaving the planet in a flat oval, followed by a long stem of the ray, the ray defense of the planet opening for its egress and then closing again about the stem. The oval grew cup-shaped, and the sides of the cup became elongated. Rapidly, the cup rushed out into space with terrific, startling momentum, its gigantic maw measuring many times the planet's diameter.

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Straight for the space fleet of Zor it rushed, appearing like a subdued star of dwindling brilliance, its latitude becoming still greater as it left the planet farther behind, connected with the secret city only my a comparatively thin wisp of bright material along which the Mumes governed its actions.

When the cup's lips reached the outermost location of the fleet, it closed up. The fleet lay imprisoned in a destructive sphere. Several ships coming in contact with its inner wall were instantly destroyed. The Mumes now held the enemy fleet at their mercy. And 6D4 knew no mercy which did not lead directly to greater conquest.

Professor Jameson desperately contemplated the mechanism about him. Would its destruction break the power of the enveloping ray? He doubted it, for 9G2 had informed him that this minaret held but one-quarter of the power necessary to supply the cylinder. All he could hope for, if he could obtain the chance of wrecking the machinery, was a possible, temporary respite from contradiction of the enveloping ray. The space fleet of Zor would still be helplessly bottled up waiting destructive measures of the Mumes.

CHAPTER IV

WHILE these thoughts ran rampant through his mind, the professor was interrupted by a call from general headquarters. The enveloping ray had commenced its insidious contraction, much like a leaking balloon. Eventually, the ships of Zor would be huddled together and destroyed as the ray closed in upon them from all sides. The call came under the authority of 6D4 and bade operations to be suspended momentarily. The globular ray suspended its shrinking process.

There came a brief pause until the reason for 6D4's sudden change of plan became apparent. The reason came in the form of a message from the central control to the minaret of 9G2 and the professor.

"We have opened your giant communicator to the power necessary for communication with the Zorome space fleet. 4N7 is holding open a break in the stem of the enveloping ray to enable you to send the following message:

"'You are surrounded by a wall of death. There is no escape. Even now, the walls are closing in upon your ships. I am giving you but one chance. Take it, and it means life instead of death. Turn your space ships over to me and enter my service: You are given only a short time in which to reach a decision.

6D4'."

"Send out the message!" cried 9G3, waving his tentacles excitedly.

The entire city listened for the message to be repeated in larger power to the condemned Zoromes. Professor Jameson hesitated a moment. The fate of worlds hung in the balance, yet he was apparently powerless. Dangerous thoughts whirled about in his mind. He was appalled by the significance of the grim situation. Conflicting thought emotions strove for expression.

"6D4 wants those ships and the metal bodies," 9G2 enthused. "He'll let the ships out a few at a time. Our ships will stand by to take them over. Enter our service! Not Zoromes!"

The professor scarcely heard what the old scientist had said. 9G2 received a brief glimpse of the professor's tremendous mental unrest which momentarily burst the machine man's strained vigilance.

"Here—let me send it!" the old scientist snapped. "This is no job for you! You're unstrung!"

"No! I am quite all right!"

The rapid manner in which Professor

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Jameson gathered his composure impressed his superior. With tentacles at the controls, he found the wavelength of the Zoromes and received a verification from them. Then he notified them of the sending identity.

"That's quite unnecessary!" 9G2 fidgeted. "Give them the message of 6D4 and have done!"

"They seem to verify their position a bit raggedly," the professor lied. "Do you suppose we shall be able to receive a clear reply?"

"Certainly! 4N7 is maintaining a small clearance through the stem of the enveloping ray for the return message! But hurry! He will close it when the stipulated time is up!"

Professor Jameson sent the message out slowly.

"You are surrounded by a wall of death. There is no escape. Even now, the walls are closing in upon your ships. ——This is 21MM392—captive in the subterranean city directly below you! Flash back annihilator rays along your ultra-reverse detector beams before the gap closes!

—21MM392."

THIS electrifying announcement left its listeners paralyzed with astonishment. For several seconds, 6D4, 9G2, the Mumes, Zoromes, and everyone listening, were dumbfounded. In this brief pause, Professor Jameson acted. Lifting a massive bar of metal, he smashed the power controls and other intricate mechanism which supplied the minaret's power to the central supply beneath the cylindrical superstructure.

9G2, recovering from his surprise, rushed at the professor who had made himself known so suddenly in this hotbed of enemies. Professor Jameson struck up the tentacle of his assailant who flourished a metal-eater, lunging against him, grappling for supremacy. He longed for the heat ray he generally carried in his fore tentacle, but it had been lost to him during the crash on Tanid. He possessed new tentacles which had been made on Mumed. The professor received several shocks on his metal body from the pistol of 9G2 as he setn the Mumed scientist rolling out the door upon the bridge.

A third machine man came running across the bridge from the next minaret. It was 4N7. Now, the professor knew that he had two enemies to combat, metal enemies equally as formidable as himself. But what difference did it make? Soon, he would have the whole city down upon his head in the ruin he had invoked from the fleet of Zor. He was already doomed and knew it, fighting to live just long enough to hear a terrific roar and watch the buildings of the enveloping ray crumble into ruin.

9G2 arose to his feet. Seizing his metal cubed body, Professor Jameson pitched the Mume into the dizzy depth of the far off street. He turned to engage 4N7. The surprise of his life awaited him.

"21MM392!"

"6W-438!" the professor exclaimed. "Where did you come from. I thought you died in the crash of Tanid!"

"I am 4N7—to the Mumes! I suppose you are 9Y1! Run this way! Our only chance!"

Professor Jameson was too dazed by the discovery of his metal comrade to think clearly by himself. He followed the running feet of 6W-438. Straight through the next minaret they ran. Beyond was a small platform, and upon the platform stood the small space flier the professor had noticed the day he came.

"Get in!" motioned 6W-438. "We have no time to lose! I hear your——"

A deafening roar split the air. The minaret behind them trembled. Professor Jameson leaped into the space flier,

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6W-438 behind him. The central building with its towering cylinder had burst to pieces. Behind them, the minaret they had just quitted crumbled and fell like a shattered smokestack upon the city below. The bridge on which the flier stood gave way, and they hurtled downward into a veil of obscuring dust. The automatic gravity brakes reduced their drop.

"We must get out of this and head for the city tunnel!" cried 6W-438, guiding the flier back into the cavern dome. "Our fleet will destroy the city!"

As they rose, a roaring column of loose building structure hurtled about them. Another minaret had gone down. They staggered out of the raining débris. The city was a chaos. The enemy had suddenly turned the tables and had reversed the offense. No one thought to stop them or bring down the little space flier heading for the tunnel. In fact, no one knew but what it was carrying Mume officials, for it was a city craft.

Unhampered, the professor and 6W-438 raced up the tunnel and out upon the surface of Mumed. Through the breach left in the ray barrier by the destruction of the enveloping ray there poured space ships of Zor. Knowing what was soon to come, the two Zoromes sped low over the ground in the Mume space flier to put a safe distance between themselves and the secret city which the Zoromes were already bombarding. With the explosion of the great cylinder in the subterranean city had gone the enveloping ray. The fleet of Zor was once more free and all powerful.

"LOOK!" 6W-438 drew the professor's attention to an object pursuing them. "Another space flier!"

"From the subterranean city, too, judging from the direction of its flight."

"It is a Mume flier, like ours! We must put on greater speed to elude it!"

6W-438 made the little space flier turn suddenly to one side in a curve that he finally developed into a right angle turn. He watched the flier behind them. To the perplexity of the machine men, it kept on its original course and made no effort to follow them.

"That flier is not after us!" the professor exclaimed. "Someone else is escaping!"

"Who can it be?"

"I have my suspicions! We must follow!"

The two machine men took it for granted that the other flier, like the one they piloted, was devoid of armaments, and they boldly clung within striking distance. The two space fliers kept on through the atmosphere, 6W-438 hanging doggedly to the trail of the other craft. They passed by aircraft of Mumed at terrific speeds, the air currents roaring and sobbing past the streamlined pellets. No space ships were seen. Most of the Mume space craft was outside and at grips with the ships of Zor.

Behind them, the two Zoromes knew that soon there would be individual combats all over the planet, Mume aircraft against Zorome space ships. Professor Jameson fully believed that the termination of the space war was close at hand.

They were approaching one of the ray locks above a Mume city when a startling announcement from the space flier ahead to the city officials confirmed Professor Jameson's growing suspicions.

"Open the ray-lock at once! This is 6D4! I go to join my fleet!"

"Take after him!" the professor directed 6W-438. "Don't let him get away!"

"Zorome space ships are coming far in our rear!" observed 6W-438. "They will fire on both space fliers when they come closer!"

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"We should be through the ray-lock by then! They will have it closed behind us by the time our space ships reach here!"

6W-438 shot the space flier ahead so swiftly that the air fairly screamed past, the flier wavering from side to side sickeningly. The little ship ahead of them dashed up the cylindrical passage walled in by palpitating rays.

"If we ever hit the rays with this ship, it will mean farewell," warned 6W-438 as he slowed their mad speed to approach the opening above the atmosphere. "These Mume ships do not bounce off the barrier rays like our ships."

The little flier of 6D4 gave a leap of tremendous speed as it hurtled from the egress of the tunnel into unrestricted space. The flier was so small, and the distance gained so sudden, that 6W-438 almost lost trace of the other craft on his detector board. But a frantic burst of speed away from the planet put its location back upon the detectors once more, and now 6W-438 gained an idea of 6D4's course and clung to that direction.

"Where do you think he is going?"

"Not to join the fleet. He is going the wrong way."

"Behind us, his plans of empire are dying," was 6W-438's suggestive statement.

THROUGH space the two fliers raced. Several times they passed the vicinity of Zorome ships, and both were subjected to fire. Charges of destruction and flaring rays slashed dangerously close, but the swift little ships were elusive targets and their diminutive bulk soon passed beyond range of the detectors. Once, they passed a group of speeding Mume ships, but 6D4 failed to slack his space an iota, nor did he reply to the queries hurled at the two space fliers as they rushed past and off the detector boards in a rapid burst of motion.

"6W-438, there is still another besides us two who survived the crash on Tanid," the professor stated. "Do you think that he, too, may be a Zorome?"

"I wonder. When I learned about you, I believed you to be a Mume and avoided you, fearing detection."

"Just as I avoided you for the same reason," added the professor.

"The Mumes believed me one of them without question."

"An organic Zorome survived that crash, too, and was killed by the Mumes," Professor Jameson mentioned. "And perhaps a few of the Mumes survived, but if they did they never lived to know about it."

"What do you mean?" queried 6W-438.

"From what I was told, the solution is obvious," said the professor. "At first, it failed to make sense, but now I know. The organic Zorome who survived saw the ships of the Mumes coming and realized but one thing. He knew our chances, if we survived, were better than his. He made sure that all the Mumes were dead before the investigators came."

"It sounds reasonable."

"What makes it more plausible is the strange fact that when the Mumes entered the wreck they saw this Zorome about to finish me with a ray gun."

"It was a ruse," offered 6W-438.

"Exactly."

"Then we owe our lives to this organic Zorome. Who was he?"

"It is probable we shall never know. It was one of the four we had on board our ships."

The little space flier hung close to the path of the fleeing Mume. The two Zoromes knew that 6D4 must be aware of their presence, yet strange as it

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seemed he made no effort at communication. Did he wish to keep his identity a secret, or did he know them as enemies? It puzzled the professor that 6D4 did not try and throw them off the track by tricky maneuvers. The leader of the Mumes kept onward in a straight, unswerving line.

"He's heading for Ablen!" ventured 6W-438. "Ablen lies straight ahead!"

6W-438 had the strength of his assertions borne out as the flier of 6D4 headed direct for the looming planet of Ablen which lay two worlds farther from the sun than Mumed. Ablen shone like a quarter moon against a velvet shroud of darkness, beyond it was a shroud punctuated profusely with brilliant star clusters.

6D4 made a half turn to the planet and landed on the morning quarter of the world. The two Zoromes swiftly followed his ship, not losing him for one moment. As 6D4's flier sank into Ablen's atmosphere, the two machine men of Zor made up part of the distance between themselves and their enemy, the distance 6D4 had put between the two ships when he had shot clear of the ray-lock on Mumed.

INTO a deep valley, the space flier of 6D4 gradually decelerated, coming to rest in the shelter of overhanging vegetation which climbed the steep sides of the valley's wall. Eyes, other than those of the two machine men swiftly descending in their pursuing craft, also saw the space flier of 6D4 bump and skid to a stop on the valley floor. From above, sight was lost of the little space flier which lay screened by the verdant foliage, and 6W-438 dropped the flier a short distance from the spot where 6D4 had landed.

The two machine men left their craft and hurried to where they had seen the ship of 6D4 drop through the trees. They found the little space ship at the termination of a long furrow it had ploughed in the ground. It lay on one side, and the door was partly open.

6W-438 approached the overturned craft a bit cautiously, the professor covering the entrance of the ship with his metal-eater held poised for 6D4's appearance. 6W-438 looked inside.

"It is empty!"

Professor Jameson stepped forth from his concealment in sudden alarm. Rough, pitted spots were appearing and growing rapidly on 6W-438's cubed body just below his head. The professor radiated a mental alarm and discharged a sustained fire in the direction of an agitated clump of bushes fully two hundred feet distant from the flier.

"This way!" the professor exclaimed, heading for the spot where a faint movement had recently stirred the bushes. "If our metal heads were not those of Zorome composition, you would have been dead by now! It was a smart move on the part of 6D4!"

"Our Mume bodies and appendages are vulnerable to his pistol, and he can disable us quite easily if he is given an advantage. We must use caution."

A flitting, metal figure disappeared behind a pile of large rocks just as Professor Jameson peered through the bushes. Risking all in one dash to be the first to fire, possessing full knowledge that his own head would resist the powers of 6D4's weapon, the professor ran and gave a leap over the nearest boulder where he had last seen 6D4. A hurried examination among the rocks disclosed the fact that the fleeing Mume had taken no stand here but had hurried onward. 6W-438 joined the professor, and together they continued at a fast pace along the valley floor.

The valley was narrow, and they knew that 6D4 could not slide past them and regain his ship or theirs. Their stop

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at the boulder heap had given him a good start, and they saw nothing of him, only occasionally there were his tracks on softer portions of the ground. The valley grew narrower and steeper after several miles of running, the vegetation disappearing to be replaced by rough, rocky walls.

"There he is!" exclaimed 6W-438, pointing ahead and upward.

The professor looked to where his comrade designated with waving tentacle. Fully two hundred feet above them, 6D4 was climbing rapidly, pushing with his four metal legs against the rough crags, while with his tentacles he pulled, seized and hauled himself upward.

The two Zoromes levelled their pistols at the self-styled emperor who had fled from the ruin which was falling upon Mumed as a result of the one flaw in his colossal plan to destroy the fleet of Zor. 6D4 had evidently seen them, for he scurried along a ledge halfway up the side of the valley wall and disappeared behind a rocky escarpment.

But he soon reappeared and unloosed a flood of metallic disintegration upon them. Professor Jameson felt one of his tentacles drop from him and fall clattering among the small stones as he and 6W-438 ran for shelter around the jutting formation of rock. Knowledge that their heads were invulnerable to the potency of the metal-eaters caused the two Zoromes to keep their eyes on the position of 6D4, ready to fire the moment he left the protection of the ledge. In this manner, several ineffectual returns of hostility developed. 6D4 held the best position, but already his metal head was badly scarred from the sniping powers of the two Zoromes.

Concealed, with the exception of his metal head and one tentacle, the professor suddenly experienced the surprise of having the tentacle melted away beneath his weapon which fell clattering and rolling to the center of the valley floor. In dismay, Professor Jameson saw it slowly eaten away by the opportune aim of 6D4. But 6W-438 was not idle, and far above them 6D4 hastily grabbed at his metal-eater with another tentacle. The one, with which he had been holding the weapon, 6W-438 had melted in two.

Far above 6D4, on the rim of the valley, indistinct figures flitted into sight then back again out of view.

"What are they?" the professor queried, ducking back from a renewed effort on the part of 6D4 to annihilate them.

"Ablenox, I believe," was 6W-438's venture. "I saw them none too plainly, but they were not machine men. Of that, I am positive."

"There they are!" the professor announced. "They're doing something up there!"

Far above them, several hulking brutes were pushing and tugging on a large object which was not yet in sight. Their low, sloping foreheads denoted a minimum of intelligence. Four mighty muscled arms on each of the creatures bulged and strained as a large rock was rolled into view.

"They're going to roll that down on 6D4!" cried 6W-438 in rapid understanding. "The Mumes oppress and enslave them! The Ablenox see a chance for retribution!"

In the minds of the dull-witted creatures above, the two Zoromes distinguished an inherited hatred against the machine men who were the bane and cruel ogres of their existence. Now, they saw a chance to kill.

The combined strength of the Ablenox brought the massive boulder to the edge of the valley's rim where they poised it on end to be sent hurtling down upon 6D4 who lay on the ledge below them.

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The two Zoromes peered from their positions and made no effort to acquaint the doomed tyrant with his impending danger. Unwitting of the menace above him, 6D4 still fired viciously at the two metal heads peering out from a rocky jutt near the valley floor.

"The Ablenox deserve to exercise vengeance more than we do," was the professor's consensus.

THE two Zoromes waited. With a united effort, the Ablenox sent the great rock juggernauting into the valley. It struck an outcropping of rock which it pulverized to powder, bouncing angrily towards the ledge where 6D4 lay secreted. The concussion aroused 6D4. In terror, the Mume looked up just in time to see the oncoming boulder rush down through the air. It was the final, split-second realization in the artificially prolonged life of a cruel, empire dreamer. Both ledge and 6D4 were crushed and broken to be sent sliding into the valley, small bits of metal parts mingled with a roaring conglomeration of onrushing rock.

"Run!" cried the professor. "They've started an avalanche this way!"

The two machine men raced down the valley away from the sliding, rolling tons of rock debris which thundered upon their recent position. Their metal bodies were hit with flying stones and ground particles of rock, but their retreat was a safe one.

"That was close!" stated 6W-438 as they ceased running to look back at the mass of rock which choked the valley. "We cannot go back the way we came!"

"Let's climb out."

The two machine men started a careful ascent of the rugged wall. 6W-438 looked up.

"The Ablenox! They're getting another stone ready!"

Quickly, the machine men dropped their holds and tumbled to the valley floor where they ran to escape the crushing doom shoved off the valley rim far above.

"They believe us to be Mumes!" was the professor's dismayed discovery. "We must let them know that we mean them no harm!"

In vain the machine men concentrated their mental faculties upon the Ablenox who followed them along the valley's rim, watching them from above, waiting for the two Zoromes to start climbing. The Ablenox knew nothing of Zoromes or Mumes. They only knew that all machine men were cruel oppressors of their race. They never lost an opportunity to kill a machine man. Such opportunities were rare. All promises were met with stubborn threats. The two Zoromes recognized the futility of argument.

At the professor's suggestion, they ran at their swiftest pace along the valley floor, the Ablenox keeping pace with them on each side of the valley. But the strain eventually told on flesh and blood just as the professor had expected. The machine men rapidly outdistanced the Ablenox, and when they believed they had put a safe distance between themselves and the menacing creatures they hurriedly scaled one of the valley walls. They were none too soon, for the grim, determined Ablenox hurried up all out of breath and commenced hurling rocks at them just before they reached the rim of the valley. The rocks they threw were small ones, the Ablenox having no time to roll up a boulder, and these were either dodged or else they clattered harmlessly from the bodies of the machine men.

The situation became reversed, however, as the machine men climbed out of the valley. The Ablenox turned tail and beat a hasty retreat, the two Zoromes making no attempts to follow.

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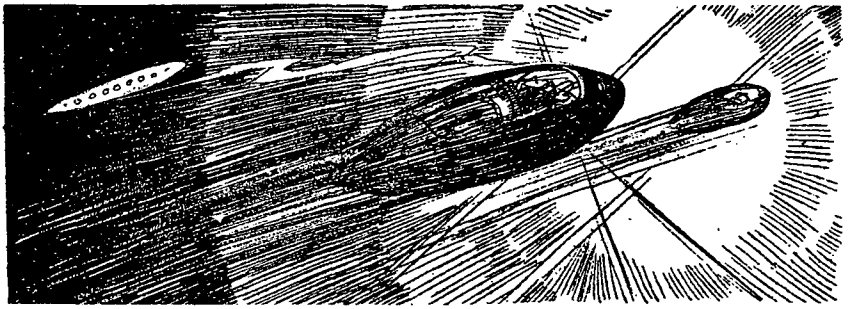
Coming back to the tree-verdured vicinity where they had left the space fliers, they found to their disappointment that both ships had been completely wrecked and stripped of everything movable. The Ablenox had seen to that.



What they were unable to steal, they had wrecked and destroyed in an orgy of vandalism.

"We're marooned on Ablen," was 6W-438's simple, yet illuminating statement.

"We have been in worse spots than this," the professor reminded his companion. "We have only to wait until a ship comes to Ablen and finds us."

"It may be a Mume ship."

"I have an idea that soon there will be a complete scarcity of Mume ships."

"Then you believe that we will win, or have won, the space war?"

Professor Jameson countered with a query of his own.

"What do you think?"

THE END

(Continued from page 39

to do good was much greater than it ever had been in the past.

"Vola!" I heard Pearson saying, "tomorrow you must show me how to draw four planes mutually perpendicular!"

"If you think that is a problem," I said, "Wait until the Dean tries to figure out what our mathematical chance was that brought us to the warped space planes at the moment it did!"

(Continued from page 64

automatically turned on the current that started the next one. The bullet was then traveling about 12,000 feet a second. The result was that the machine gun shot something like 30,000 times a minute. It acted like a huge bandsaw, each bullet being a tooth, and moving better than two miles a second.

"Any wonder it cut through the ships, motor and all?" Kennedy smiled, and rose from his chair. "And now, Bob, I think we'd better see Montgomery, and tell the news. "He smiled drily. "I'll do my talking to the engineers of the companies. Financial geniuses seem to be disbelieving folk."

We were acting in true self-defense. It was they or we. But it is a sad load to carry—the loss of a human life.

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The Men Without Shadows

By STANTON A. COBLENTZ

This narration is one of Mr. Coblentz's best efforts. He is a great favorite with our readers, and he absolutely deserves their appreciation; this tale, which we may almost term a 'mystery story,' will be greatly enjoyed by them. It is a science phantasy in the strict interpretation of the words, bringing into the scene visitors from a distant planet, who are opposed to the warlike motives and methods of our earth.

Illustrated by MOREY

CHAPTER I

As long as men continue to read history on this self-regarding, little planet of ours, the year 1999 will be remembered as a time of prodigies and terror.

It was in January of that year that the Intercontinental War, which involved every people on earth except the Esquimaux and the "black-fellows" of Australia, broke forth at the cost of a million lives a day. And it was in February of the same year that the first of the so-called Green Apparitions flamed in the northern skies, startling the world from its absorption in warfare to the contemplation of an appalling mystery.

At intervals of several days, in widely scattered parts of the northern hemisphere, a bewildering celestial spectacle was observed. Invariably it occurred in the hours between sunset and dawn, and invariably originated in the same section of the heavens, which was vaguely described as in the region of the constellation of Hercules. Its general features were those of a gigantic meteor, which, with hissing streamers of green fire, would appear with terrorizing suddenness, and then, instead of falling with ever-increasing velocity, would inexplicably lose in speed and settle to earth in a series of long, gradual spirals.

Since the phenomenon was reported on numerous occasions and from thousands of observers, there was no possibility of ascribing it to the mere hallucinations of the battle-crazed.

As if to throw a further pall of mystery over the whole affair, various strange electrical disturbances were noted at about the same time: unaccountable perturbations in the magnetic needle, magnetic storms of a violent and freakish nature, curious noises over the radio, nearer

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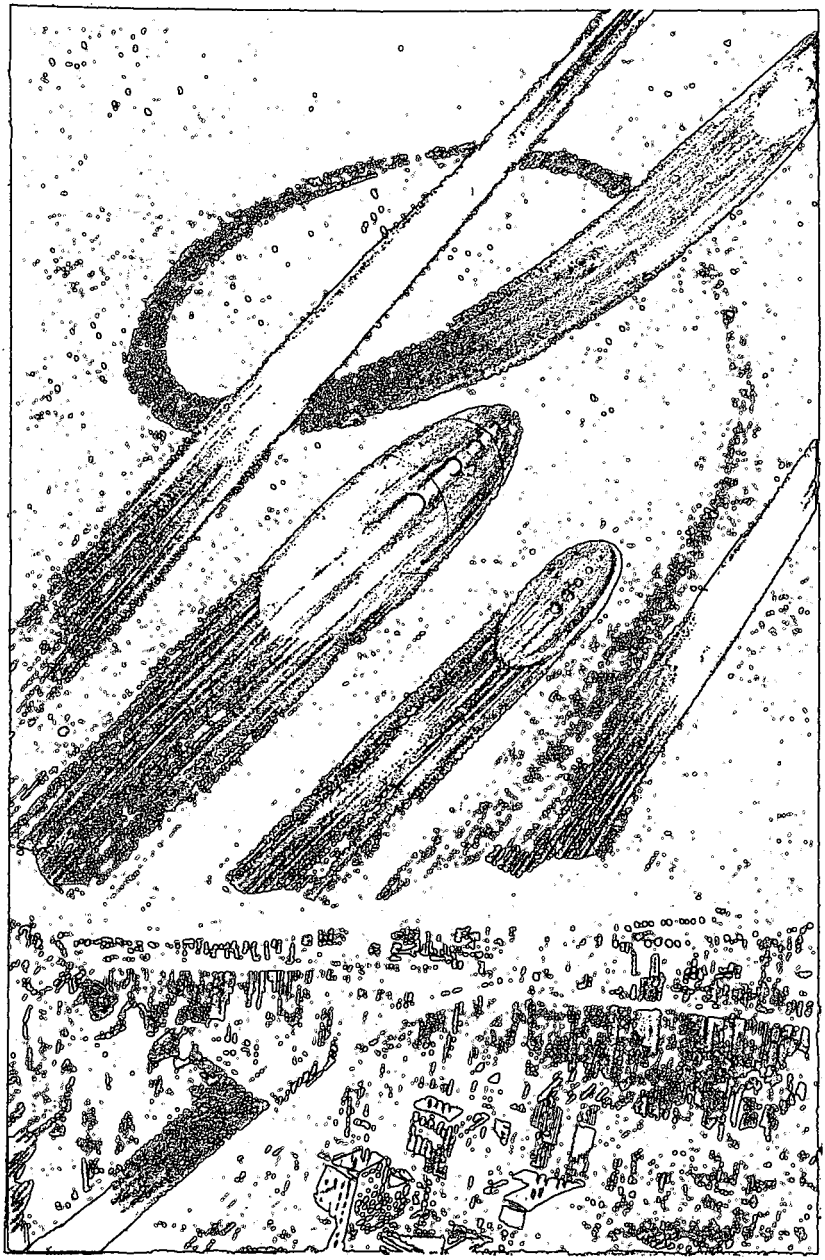

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in sound to human speech than to static and yet wholly incomprehensible—and, most astonishing of all, sudden flashes of purple light, flaring up at regular intervals at night, in the wildest and most inaccessible regions, like signals darted from unknown sources.

True, men did not at first connect all these various manifestations as only the phases of a single overwhelming event. Among the superstitious masses, quick to tear aside the gauzy veils of culture, rumors were rife of evil spirits and demons, and even of the return of Lucifer; among the more enlightened, it was generally believed that the enemy in the Intercontinental War had devised some sinister new means of conflict. But the entire world was aroused to apprehension and terror; and, for a time, interest in the Green Apparitions overshadowed even interest in the war itself.

LITTLE did men suspect that the most awe-inspiring occurrences were still in store! Indeed, so extraordinary were the ensuing events that the testimony of observers was at first powerless against the natural incredulity of man. For could one suspect any person of being other than a lunatic when he reported seeing living beings of a type never before known? Was it not easier to suppose a man to be the victim of delirium than a sober truth-teller, when he mentioned man-like creatures taller than giraffes, who moved across the landscape with the agility of stags and the velocity of wind-driven clouds, and who had huge bulbous heads equipped with projecting searchlight eyes? But even had the descriptions been confined to such details, there might have been many of the less analytical who would take them seriously. The world's skepticism, however, was almost complete when it was announced that, except for their brilliant eyes, the creatures were all but invisible in most lights; that they were of the general appearance of thin vapor, and cast barely any perceptible shadow. "Mere ghosts! Mere bugaboos!" laughed the erudite, and did their best to dismiss the increasingly numerous reports of the reappearance of the strangers.

Yet it is notable that, even at an early date, there were one or two intellectuals who aroused the derision of their fellows by insisting on the reality of the so-called phantoms. Among these was the famous Chinese astro-physicist, Lao Sze, whose prophetic words have long been remembered. Let me quote from a now-famous utterance of this sage, delivered before the Euroasian Scientific Congress in March, 1999:

"Is it not conceivable that there exist on other worlds beings of a totally different physical construction from our own? The body of man has a density and composition suited to the gravity and atmospheric pressure on the earth; but are we not to suppose that, under different gravitational and atmospheric conditions, a different type of body would be evolved? Let us consider a huge planet such as Jupiter. What sort of creature may we reasonably regard as capable of existence there? Were it of our own dense construction, it would hardly be able to make a crawling headway against the tremendous force of gravity. But were it composed of liquids or vapors held together within a tough and yet thin case, it might be able to move with moderate celerity. Such a creature might be so tenuous as not to be seen in many lights, and as scarcely to cast a shadow. I venture to say that the appearance of our mysterious visitors may be explained in some such manner."

MOST of our readers will recall what a howl of ridicule resounded across the earth when Dr. Lao made this celebrated statement. Yet how richly time

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was to justify him! In the weeks following his address, the searchlight-eyed intruders were reported with increasing frequency. From a farmer in Alberta the tidings would come that they had been observed for an entire day as he sowed his wheat lands; from the wharves of Odessa the news would travel that they had made themselves visible for hours; from the coffee plantations of Brazil, the great airplane factories of Michigan, the tenements of New York and London and the fashionable resorts of the Riviera, they were reported time after time. Occasionally they were even seen in the Parliaments of the nations, and most often of all they were noticed on the battlefield—as though they took an especial delight in bloodshed and slaughter. And always they had the air of being observing, observing with an intense interest, noting details, and studying the ways of man.

I cannot say just when it was—though, certainly, it was long before 1999 was over—even the most skeptical began to take the existence of the intruders for granted. Then it was that various attempts were made to communicate with them—attempts that met with no more response than if the visitors had been phantoms of the imagination. It was therefore concluded that in all probability they had not the sense organs to grasp our signals, or else were too unintelligent to comprehend them. And since they appeared to go their way peacefully enough, and were never known to molest any man, woman or child, the world gradually fell into the habit of disregarding them; and after a few months, amid the fevers and exactions of the Intercontinental War, the newcomers were as little heeded as if they had been clouds or trees.

But 1999 had not yet passed into history when, with shattering suddenness, the world's pleasant illusion was broken . . . and it was discovered that the "Men Without Shadows" were in reality more formidable than bomb-hurling armies.

CHAPTER II

IT was in October of the fateful year that I first made the acquaintance of the mysterious strangers.

As Minister of State of the United Republics of the West (that vast empire best known by the abbreviation Urow, which reaches from the Caucasus westward to the Pacific), I had been too intensely occupied with the Intercontinental War to give much thought to the supposed visitors from another planet. It had been largely at my stimulation, indeed, that Urow had plunged into the war, for I was convinced that there were trade advantages in the Orient, not to speak of vast mineral deposits, which we could not obtain otherwise than by following the orthodox method—warfare. So important did our objective appear, and so intent was I upon attaining it, that it seemed to me the veriest sentimentalism to speak of the incidental loss of a few hundreds of millions of lives; and I had resisted with all the strength of my tremendous authority the efforts of those weaklings and false humanitarians who desired a premature peace.

Accordingly, it was exasperating to have my plans impeded by the meddling of the "Men Without Shadows." It was worse than exasperating—it was heart-rending, for they appeared at the very moment when I was planning my supreme "coup." How well I recall the occasion! With the tacit approval of the Urowian Parliament, I had called a secret conclave to meet at the offices of State of Omaha (which had long been the Capital, because being far inland, it was relatively safe from airplane attack). Not only the President of Urow and his chief cabinet members, but delegates from Peru, Alaska, the Balkans and

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all the other outlying provinces of the Empire, were to be present—and I was to lay before them a proposition of unparalleled importance.

I shall spare the reader all account of the preliminaries of the secret arrival of the diplomats, their whispered conferences in the anterooms, their air of barely suppressed excitement—as though all were aware that something ominous brooded in the offing. I shall not even linger over the opening of the meeting, when the twenty-nine of us (the twenty-nine men who constituted the real government of Urow) gathered in my private office, popularly known as the Hall of the Howitzers, because of the decorations of howitzers and long-range guns that covered the walls. After a brief address by the President, I took the chair; and as I regarded my grizzled and bewhiskered compeers, all of them with that cynical and crafty expression, without which no man nowadays receives his diploma in diplomacy, I felt a surge of vast enthusiasm sweep over me, and eagerly presented my plans:

"FRIENDS and Associates: it is no ordinary occasion that has brought us here today. You realize that, for nine months now, the Intercontinental War has been blazing; and while our newspapers daily report 'overwhelming victories,' you know that we have lost more ground that we have gained. But now I have a scheme that, if put into effect, will give us victory to-morrow. And I know what I am talking about when I say that it can be put into effect, and that all that will be required is courage. But when has a true Urowian ever lacked courage?"

I paused briefly for effect, and was greeted by the expected volley of cheers.

"Above you floats the banner of liberty," I proceeded, pointing to where, just over the marble-flanked door, the black and crimson Urowian flag had been hung, bearing the vivid image of a bursting bomb. "But never has that banner been glorified as it will be—if you accept my plan. You see what I have here." Again I paused, and drew from one of my pockets a little yellow vial, no longer than a man's finger. "What you observe is a one-ounce container of a new chemical, Multicholanicide, which has just been perfected after thirty years of study. I need not reveal its composition, or the name of its illustrious inventor; I need only say that the contents of this vial, poured into a lake or river that supplies the drinking water of one hundred thousand persons, would cause the death of not less than ninety-eight thousand within twenty-four hours."

"Death of ninety-eight thousand? Impossible!" came from a dozen throats, as my hearers, manifestly interested, leaned forward with incredulous smiles.

"You know the action of carbon monoxide," I continued, enthusiastically. "It combines with those essential oxygen-carriers, the red blood corpuscles, and through destroying them has the same effect as a hemorrhage in depleting the blood supply. Well, multichloranicide acts in the same way—but, at a modest estimate, is a million times more effective. It works best when diluted with water. That is why I feel safe in saying that a small amount of the substance—a few hundred pounds, at most—judiciously sprinkled into our enemy's water supply, would bring swift and unavoidable death to nineteen combatants and non-combatants out of every twenty, and would make our conquest not only sure and swift but permanent."

Again I paused for effect. Low gasps of amazement issued from the throats of my hearers; their eyes glittered with a predatory eagerness, their lips drew open with the cruel anticipatory relish of victory. And, with a rush of joy, I

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knew that I had already converted them to my point of view!

I HAD continued my harangue, and was pointing to one of the patriotic illustrations that lined the wall on my right—that of a giant siege gun, which would devastate fifteen hundred acres with a shell at a distance of ninety miles—when suddenly I became aware of a curious change in the attitude of my audience. All at once they had ceased to heed my words; all at once their eyes were fixed, with an expression of consternation and terror, upon a spot on the wall just to my left.

And I, as I turned to see what had so strangely stirred them, broke suddenly short in my speech, and joined in their bewilderment and dread.

Through an open window high on the wall, two dazzlingly brilliant white lights were radiating. A little closer together than automobile headlights, they seemed mere moving points of electricity. . . . things eerie, unearthly, unheard of in all human experience.

Not a word did any of us speak until the lights were fairly in the room; then, as we still stared in awe-stricken silence, we could gradually distinguish the outlines of a hazy form—a form gigantic and yet vaguely man-shaped, with spidery thin legs and huge bulbous head. It was one of the "Men Without Shadows."

I do not know how long we continued speechlessly peering at the apparition. Personally, though never a superstitious man, I felt as if I were seeing a ghost; and not all the stories I had heard of the mysterious intruders could serve to dissipate my sense of something weird and supernatural.

Yet my first sensations of horror were as nothing compared to the astonishing sequel. To be confronted with a specter is startling enough; but to be addressed by the specter is unimaginably more terrifying. Try to picture, then, the alarm, the paralyzing amazement of my companions and myself as a hollow voice broke forth suddenly in deep, sepulchral tones:

"EARTH-MEN, listen to me! I have been waiting long to speak to you, and now the time has come! There is much that you must listen to, and much that you must do!"

With a queer accentuation, as of a foreigner who has only partially mastered our language, this speech rumbled to a close. . . . . Then, for a few seconds, there followed absolute silence, silence that was almost deathly in its tense, unbroken quality.

It was with a shock of relief that we heard the booming voice of the Delegate from the Argentine:

"Who are you? Where do you come from? What do you want of us?"

It seemed to me that the two searchlight eyes grew brighter—so much brighter, indeed, that for a moment none of us could bear to look upon them. The whole room blazed with their glory; it was as if fragments of the sun had detached themselves and fallen among us.

"I am Omanru," came the answer, in tomb-like hollow tones, reminding me of a radio poorly tuned and out of order. "I am Omanru, head of the expedition from the planet Dar—the ringed planet which you, in your jargon, know as Saturn. For the space of nearly one earth-year my brothers and I have been here, studying the ways of your people and your queer babbling tongues—which being but rudimentary and having no complicated thoughts to express, were easy enough to master. What has given us more trouble has been to invent speaking-machines to communicate with you; for our natural speech, being in a different wave-length than yours, is inaudible to your ears—though we, in our turn,

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have ears capable of gathering everything you say. But now, earth-men, after many moons, we have made the speaking- machines, which we use to-day for the first time. There is much that we would say to you, and we command you to listen!"

The concluding words were followed by a flash of blue lightning, which flickered across the room and vanished, to the accompaniment of thunderous detonations. And my companions and I, forgetting for the moment our dignity as the leaders of the greatest nation on earth, were reduced to the submissiveness of children, and waited expectantly, timidly, meekly for the next utterances of the Unknown.

When finally the words came, they were spoken with a slow sonorous gravity that could not quite conceal their eerie, other-worldly quality:

"EARTH-MEN, know that we, of the great planet of Dar, have long ago attained the perfection of civilization. We exist in a state of spiritual bliss and freedom, unimaginable by you of this petty. bawling planet, Moreover, we have for ages been able to communicate with our civilized brethren of the Solar System and the outer universe, and for ages have projected our rocket-ships across the abysses of space. The inhabitants of Jupiter, of Uranus and of Neptune are for us as next-door neighbors, and we regularly exchange visits and ideas with these distinguished people. Even you, with your limited understanding, will hardly be able to comprehend the exalted nature of such celestial intercourse . . . so let me pass on. The fact, that most concerns you, is that we have not ordinarily thought it worth while to waste time on this mote you call earth. Not that we do not admit that there may be value even in small worlds; but since, for thousands of years, we have never received any response to our radio messages to this particular planetoid, we concluded that it was either uninhabited, or else populated solely by rudimentary life-forms. Of recent centuries, however, interest in the earth has been growing, and it has been argued that, since nothing is beneath the interest of the student of the lower orders of life, even the earth might have something to contribute to the knowledge of civilized beings. For this reason a score of my companions and myself, being interested in science and having a spare century or two on our hands, recently decided to undergo the rigors of voluntary exile to the earth . . . in order to make it the subject of a report to the League for the Study of Backward Planets."

While the voice of the Unknown was thundering out its syllables with a hollow, strangely unnatural accentuation, one could almost see the terror that was leaping and shivering across the audience. The President of Urow had turned ghastly pale; the Minister of War had subsided into his seat with such an ashen countenance that I feared he would faint; the Minister of Aviation had collapsed into a limp heap, and the Minister of the Treasury was muttering audibly in his horror; while twenty-nine pairs of eyes, on a simultaneous impulse, began to turn questioningly toward the nearest door.

It was the Delegate from the Sudan who, with more daring and audacity than the rest of us, acted upon the impulse that had moved us all alike. Our visitor from Saturn had come to an emphatic halt in his speech when the Delegate from the Sudan, who was a slim, wiry man, slid from his seat and glided toward an exit just across the aisle from him.

At the same instant, the rest of us leapt to our feet, and would certainly have followed the example of the Delegate from the Sudan—had it not been for the unexpected sequel.

All at once a streak of blue flame shot

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across the room from end to end, coming within less than an inch of the Delegate from the Sudan. And the man, with an exclamation of pain, stopped suddenly short . . . unable to advance another step.

But the eyes of the Saturnian glowed once more with overwhelming brilliance; and from amid the unseen there came a hollow rattling sound, strangely like mocking laughter.

With drooping head, like a whipped dog, the Delegate from the Sudan retreated to his seat.

"ARE there any more of you who would like the same experience?" challenged the uncanny voice of our visitor. And a dozen more blue flames leapt about the room in warning succession, one of them missing me by a matter of inches.

By this time we had grown about as self-assertive as a flock of sheep. The only remaining flicker of resistance came when the Delegate from Bolivia, who had a revolver concealed amid his clothing, made a hasty attempt to withdraw the weapon and to point it toward the gleaming eyes of the Saturnian. But before he had time to lift his finger to the trigger, a blade of blue flame hissed in his direction, the revolver fell from his grasp and he clutched with an agonized expression at a right hand streaked with the long white scar of a new-made burn.

And again the voice of the Saturnian sounded, in tones disquieting like mockery:

"I am sorry, my friend, but it is a rule among my poeple that dangerous implements should not be entrusted to children. The sooner you learn the folly of disobedience, the better we will all get along together. Understand, then, that we Saturnians are equipped with electrical knowledge beyond your wildest imaginings. By means of power direct from the heat of the atom, I can hold you all within a charged circle, beyond which you can move only at the risk of your lives. And I can keep that circle charged as long as I wish. Do you desire any further demonstration?"

The awe-stricken silence which greeted these words seemed to convince the Saturnian that no further demonstration was necessary; for after a moment he continued, in solemn tones:

"NOW, earth-men, let me make clear my purpose in coming among you to-day. When my friends and I first arrived at this forlorn little world, we intended merely to make a tour of inspection and return home with a few notes. But what we observed was so startling, that we were forced to change our plans. As I have implied, we have been studying all phases of your life and civilization, sometimes in ways you have little suspected; and all that we have seen has bewildered and appalled us. Even on our own planet, there are a few survivals of the lower forms of life; but never had we suspected that any beings with a glimmer of intelligence could fall to the level of your earth-creatures. We had not been here a day before we began to discover how incapable you are of conducting your own affairs. Why, my friends, the very beetles and ants at your feet could give you lessons. At first we could not believe the obvious facts; you have industries that produce more than you can consume, and yet half of your people live under the shadow of starvation; you have science that could uplift the world with priceless revelations, and yet prostitutes itself to the invention of methods of slaughter; you have nations that could unite to move forward a real civilization, and yet spend most of their time hurling or preparing to hurl bombs across each other's borders.

"But why recite the whole story of corruption, greed and stupidity that writes

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itself in letters of blood across your planet? Let me only state the inescapable conclusion. The human race is incapable of self-government. It has not the character nor the intelligence to guide its own life. And so, for your own sakes —since we feel it to be the place of a higher civilization to lend a helping hand —we of the planet Dar have decided to establish a Protectorate over the earth."

"Protectorate?" gasped several of my companions and I in one breath, remembering that this was the very term we applied to backward lands taken under the wing of a great nation.

"Yes, Protectorate!" reiterated the hollow voice of the Saturnian. "Just as children must be controlled by their parents for their own good, so you will be under our authority henceforth. Your own laws will be abrogated; our laws will take their place. Your ancient customs will be abolished; ours will reign in their stead. You will do, speak and think as we command—and he who disobeys will have our chastisement to dread. Thus, and thus only, will you be able to advance to a true civilization!"

The Saturnian came to a thunderous halt; and an impressive silence fell among us. Each of us glanced furtively at his neighbor, and each saw in the other's eyes but a reflection of his own dismay. The Minister of War coughed, opened his lips to speak, but uttered nothing intelligible; the Minister of Submarines leaned forward in his seat and looked as if he were about to protest, but fell back as though struck by some invisible hand.

The terrible eyes of the Saturnian blazed to their full intensity before he resumed:

"I ARRIVED here to-day at an opportune moment. An incredible crime was about to be committed, whereby you were to murder hundreds of millions of your brothers. If I am not mistaken, the arch-criminal"—here the searchlight eyes were fixed upon me with such brilliance that I had to look away—"the arch-criminal sits over yonder. It is he who proposed to poison the drinking waters of myriads of his fellow beings."

Despite the horrible glare of the Saturnian's eyes, I managed to find halting words. "All is fair in hate or war," I quoted, repeating an old adage slightly modified.

A gusty, rattling laughter signified the visitor's reply. "You earth-men have not the moral sense of rats!" he retorted, in disgust. "So let me begin with you, my friend. What do your fellows call you?"

"I am known as the Hon. Alexander D. Coldwater, Minister of State of Urow," I returned, with dignity.

"Then, Alexander," returned the Saturnian, in the manner of one addressing a child, "I think we will begin with you. I believe you will find some of your official stationery in the desk to your right. You will secure some of it, and take down a message from dictation."

"Message from dictation?" I demanded, feeling my face grow hot with anger. "I am not a stenographer!"

"Henceforth you are whatever we direct you to be!" stated our visitor severely. "But do not fear. The message I am about to dictate is a beneficent one. It is to your enemies in the Intercontinental War, suing for peace."

All at once, as if in a prophetic vision, I could see the collapse of all my hopes. The Intercontinental War, that contest which was to have given Urow control of the world, was to be terminated at the mere impudent whim of the strangers from Saturn!

"Why do you hesitate, Alexander?" insisted the voice of our Master. "Go to the desk, and get your writing paper!"

Driven by the impulse of a will strong-

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er than my own, I started out of my seat; then, of a sudden, fell limply back into it, shuddering and nerve-racked, yet still able to lift a feeble voice of protest:

"I can't do it! I can't! I can't—I can't break faith and end the war!"

Another instant of silence intervened. I felt the eyes of all my companions fixed upon me, in anxiety and dread. Then suddenly the heavy suspense was shattered:

"Come, Alexander! Come! You are wasting valuable time!"

Instantly there followed such a display of electrical pyrotechnics, as I had never witnessed before. Red flashes; green flashes; blue flashes; orange flashes; streaks and streamers and spirals of mingled red and green and blue and orange; rocket-like explosions of crimson and golden scintillating white stars that hovered near my shoulders and vanished —and all these demonstrations accompanied by a hissing, buzzing and detonating that reminded me of a battlefield. For a moment it seemed to me that my last hour had come!

And then, as suddenly as it had started, the exhibition was over!

Just to my left the Minister of Public Welfare, struck by one of the bolts, was lying in a crumpled, apparently lifeless mass. And the Minister of Education and the Delegate from the Transvaal were bending over him, all to no avail!

"Do not fear! We can revive him whenever we desire!" shrilled the Saturnian. "Now, perhaps, Alexander, you are ready for me to dictate my message!"

Without a word, I arose and slouched over to the desk containing the official writing-paper of Urow.

CHAPTER III

IT is safe to say that never, during all the five or six thousand years since man emerged from barbarism, did the world undergo such changes as during the reign of the Dynasty of Saturn.

What a woeful commentary on human helplessness is furnished by the activities of our celestial visitors! Although the intruders numbered but twenty-one, yet the swarming billions that populated our earth were defenseless again them! The redoubtable gods of ancient mythology, with their wings and their thunderbolts and their magical powers, were not so far superior to mankind as were the natives of Saturn; indeed, no time at all had elapsed before millions throughout the earth had begun to revere them as gods, and to offer prayers to them in shrines and temples . . . until the Saturnians themselves put an end to this practice. Roaming the earth with the speed of a whirlwind, invisible unless they chose to be seen, untouchable by any weapon at man's command, they dominated every land by means of their terrifying lightnings; and yet never were they known to harm any human being, except when defiance grew too resolute. . . .

Their first action was to terminate the Intercontinental War. Dissatisfied with the tardiness of the diplomatic negotiations I had initiated at their conclusion, they appeared on the battlefield, and disbanded the armies by means of irresistibly powerful electric waves—which shattered the big guns and bombing airplanes, destroyed trenches, mines and fortifications, and threw such terror into the troops, that they fled in all directions as fast as their panic-stricken legs would carry them. Never in all history had the armies of any nation been defeated more thoroughly than were the armies of all the world beneath the bolts of the twenty-one Saturnians.

Having gained this bloodless victory (bloodless, because the only casualties were a few thousand that died of *fright*), the "Men Without Shadows" turned their attention to the govern-

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ments of the world. As they had dealt with my associates and myself, so they dealt with the political leaders of the entire earth—kings, emperors, mikados, emirs, sultans soon found themselves taking orders like any house servant; soon were driven to mingle with the commonplace crowd of merchants, artisans, clerks, and street-sweepers they had formerly governed. And when any human being was granted even a shadow of individual power, it was almost invariably some person lifted from a carpenter's bench or a barber's chair in recognition of capacities previously undetected by his fellows.

MY own experiences under the new regime were particularly humiliating. From the moment that the Saturnians assumed control, it seemed to me as if their activities were aimed especially against myself. Not only was I stripped of all my political power; I was compelled to abandon my official mansion, to discharge my servants, to discontinue the use of my fleet of limousines and of my private yacht, to distribute my luxuriant wardrobe among the poor, and to remove to one of the dingier sections of town. Worst of all!—the Saturnians made me the victim of a pernicious theory of theirs that "A man should try all types of experience," and assigned me to an occupation I cannot recall even now without a boiling of the blood. I, Alexander Coldwater, Minister of State of Urow, at whose very word whole nations would once have trembled, was reduced to the rôle of a valet! And, as if that were not sufficiently disgraceful, I was forced to act as valet to a former servant of mine! Picture me now in a lackey's livery, compelled to shine the boots of ex-butler Jenkins, who sits enthroned in a commodious apartment, while I must be content with a miserable back-room! Picture my wife, once a leader in smart society, forced to play the part of nursemaid to the Jenkins children! But no! do not picture any of this! The old rage sweeps over me anew, I feel a clenching of the fists, a tightening of the muscles of the neck, and a tear creeps once more into the corner of my eye at the realization of my own impotence in those days.

For impotent I assuredly was—no fly caught in a spider's web was ever more helpless. The Saturnians had re-arranged the planet to suit themselves, in the attempt to bring "justice" and "equality" into human affairs. The privileged were hurled from their pinnacles; the downtrodden were upraised to the peaks. Through the agency of leaders selected from the lower strata of society, the Saturnians supervised a system whereby each person was assigned to the work he seemed best fitted for; while all who worked were certain to share in the common harvest, so that destitution seemed about to become a thing of the past. . . . I will not dwell upon the details of this system, except to say that it did attain a few minor objects, such as to protect the old and the sickly, to care for the orphaned and the widowed, to reduce vice and crime toward the point of invisibility, to end international and industrial disturbances, to limit hours of work to four a day, and to insure a reign of plenty for all.

IT might be thought that, though the once-privileged classes and the former leaders would object, the mass of men would be well content with the new system. Such, however, was far from the case; the Saturnians, forgetful of human emotions in their cold pursuit of reason, had trodden upon too many popular prejudices. For one thing, they had abolished all national lines, so that only the "country of humanity" was recognized—which, of course, excited the indignation of patriots throughout the

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earth. Again, they had refused to recognize organized religion, and declared that the only true religion was the "Religion of Humanity"—which stirred up the fury of good people in every land. And, finally, invading that most sacred institution, the home, they had ignored the innate qualifications of every parent to rear his own children: mothers and fathers not measuring up to a certain degree of intelligence, conscientiousness and morality were deprived of the care of their sons and daughters, who were provided for in State institutions. "Even the animals can beget and give birth," was the atrocious maxim by which the Saturnians justified this practice.

Had the intruders confined themselves to mere theory, or converted theory into practice only in a few rare cases, they might not have aroused such general indignation. But parent-examining clinics were established in every city and town; and the statistics, as announced after the first three years, showed that seventy-five per cent of all parents were adjudged unsuitable company for their children! The best families were affected—in fact the best families were affected far more than the worst!—even His Excellency, the former President of Urow, suffered the humiliation of seeing his children taken from him! While among the ranks of the "Four Hundred" of Urow, not a child was any longer to be seen! True, the children appeared to thrive in the institutions, and rarely did any boy or girl desire to return home; but such considerations, of course, did not in any way serve to allay the popular wrath.

FOR ten years the Saturnians remained in power. For ten years they dominated the earth by means of their irresistible lightnings; while the human agents whom they established throughout the world were inflexible in their support. Yet all the while the subterranean thunders of revolt were rumbling. The rallying calls, "Give us back our children!" and "Preserve the sanctity of the home!" were heard at many a meeting in some fetid basement or attic where ex-diplomats and leaders of finance and society furtively conferred. Dangerous, indeed, were such gatherings; for when the Saturnians learned of them, as they almost invariably did by some process that may have been telepathic, they would avenge themselves by sentencing the conspirators to years of some particularly obnoxious work . . . and thus it happened that one would find once-powerful bankers stoking furnaces, and former "princes of industry" cleaning out sewers, and the Governors of States swinging sledge-hammers on rock piles.

I myself, as one of the most irreconciliable enemies of the Saturnians, had taken a prominent part in the agitation for their overthrow, and as a result was passing most of my days with pick and shovel in a deep coal mine. But during my brief periods of freedom (I was allowed three days above ground each month), I heard abundant evidence of the discontent that was seething all about me.

"Ah, for the good old days!" sighed men who had groaned in poverty before the Saturnians came, and now live in well furnished homes amid an abundance of food. . . "Ah, for the good old days!" mourned those who had been pushed from pillar to post, and jostled in the struggle for bread, and nipped and torn by the birds of prey that convened in the marketplace. . . . "Ah, for the good old days!" was the general lament; and forgotten were wars and revolutions, unemployment and famine, long hours of work and inadequate wage returns, strikes and lockouts and "slum" dwellings and all the now-vanished institutions of pre-Saturnian days. Desperately men longed for the return of the olden times,

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over which had suddenly grown a halo that was most romantic; and the popular rallying cry, "Give us back our children!", was turning out to be but the pretext for a general mass movement, since it was indulged in ardently by those whose children remained with them, and by those who had never had any children. Translated broadly, "Give us back our children!" meant, "Give us back our freedom!"

Nor did this cry find expression only in words. From time to time, at intervals of months or years, there were actual attemps at revolt. First a group of farm laborers in Siberia; then a band of former industrialists in South Germany; then the heads of the disbanded armies and navies of Japan and China, along with combination of miners and mountaineers scores of thousands of followers; then a in Kentucky, attempted to wrest control of our planet from the terrible invaders. But as well might a party of infants seek to overthrow an adult State! On each occasion two or three Saturnians appeared at the scene of disturbance—but never more than two or three—and by means of a heaven-shaking display of lightning and thunder shot terror into the hearts of the rebels. In most cases, so overwhelming was the power of the Saturnians, and so keen the dread of them entertained by the rank and file of men—the insurrection was suppressed within an hour, and without the loss of a single life.

But since the leaders were invariably apprehended and punished with years of hard labor, the revolts began to grow less frequent as time went by.

Then at last, after ten years, the opportunity unexpectedly arrived for a rebellion which would not only be more widespread than any of the others but offered more reasonable prospects of success.

CHAPTER IV

DURING all the years of our acquaintance with the Saturnians, it had never occurred to us that they might perhaps have human emotions, human desires—even human follies and weaknesses. So aloof, so superior, so altogether unhuman did they appear that we would as soon have looked for an exhibition of feeling from granite hills. What, then, was our surprise one day to learn that they suffered from a failing common to mankind, and were about to yield to temptation!

In a word, they had grown homesick! They were filled with longing for their native world; longing for their friends and kind! And, having withstood their growing nostalgia for several years, they had finally decided to make a brief visit to Saturn. "Earth-men, we leave you for the time only!" they had announced, in tones of hollow thunder that had been heard on every radio throughout the world. "In a year or two at most we will be back! Meanwhile we leave everything on this planet perfectly organized, with those earth-men we have trained for leadership in absolute control! You will listen to their commands, and obey them in every particular! Farewell!

On several successive nights the world was treated to the sight of fiery green apparitions ascending; of streaming comet-like bodies that wound their way upward in long swift spirals and disappeared in the upper ether. And after the twenty-first of these bodies had been counted, a universal howl of acclamation rang forth. At last we were free!

What need to describe the riots and revels of the succeeding days? Who is there that does not recall the madness that swept over the earth; the bacchanalian fêtes; the abandon of dancing and singing and banqueting that held all lands in its grip, in an eruption of unrestraint

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after the severe repression of the past ten years? And who, moreover, does not recall the insane fury with which the representatives of the Saturnians were hunted down? the vengeful hate that pursued all men placed in positions of power by our masters from on high? the bombs and bullets and sword-thrusts that, within a few weeks, had put an end to the life of the last of these miserable beings?

WE citizens of that newly liberated world were literally like school children when the teacher leaves the room. And we were heads over heels in our eagerness to perform every possible prank, and, above all, to restore the splendor of pre-Saturnian days. Everything that the Saturnians had done was hastily undone; national lines were restored, lavish wealth re-appeared by the side of pinch-faced poverty; corruption and strife and inequality returned all the stronger for their enforced absence. And —most important of all—the dethroned leaders of the world were elevated once more to their former power. I, too, returning from the obscurity of the coal mine, sat once more in the pride of high office; while all about me ruled such of my old associates as had survived the Saturnian ordeal. It was typical of our attitude that, in our hasty effort to make up for lost time, our first act was to reassemble our abandoned armies, to rebuild our shattered navies, and so to prepare for the early resumption of the Intercontinental War.

But did we not dread the return of our masters? Yes, most profoundly we dreaded it . . . although a wild, baseless hope had sprung up that perhaps they would never come back. Who knew but that they would be lost among the unfathomable abysses of space? Or that they would find Saturn so much to their liking that they would decide not to make the return journey? However, we could not take serious account of any such possibilities. Our chief hope was in some actual method of defense against the intruders. Perhaps, given time, human ingenuity would prove capable of combating them. . . .

And so hundreds of the world's leading scientists and inventors (all, in fact, who were not trying to perfect new weapons for the Intercontinental War) were devoting themselves to discovering some means of combating the "Men Without Shadows." Scores of devices were proposed, from explosives to poisons; but finally it was agreed that, since the source of their power was electrical, they could probably best be resisted by electrical means. The most promising practical suggestion seemed to be that of a Swedish scientist, Nils Jorgensen, who invented an artificial "lightning machine," capable of generating millions of volts, which could be directed at will by radio over an area of thousands of square miles. Thus, it seemed likely, we would be able to answer the Saturnian bolts with equally powerful bolts of our own—and so perhaps abruptly terminate their power.

A year went by, and the "lightning machines" were established at scores of convenient places throughout the earth. But apparently the men of Saturn were in no hurry. A year and a half passed; two years; two years and a half—and still the searchlight-eyed ones remained mysteriously absent. What had happened? Had they, after all, forgotten to return? A wave of bravado began to sweep the earth; it was rumored that the Saturnians would not come back; that they had been intimidated by our increasing power! And men plunged more ardently than ever back into the old routine of their affairs, increasingly forgetful that the Dynasty of Saturn had ever reigned.

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IT was shortly after the resumption of the Intercontinental War that the world's growing complacency was abruptly shaken. I recall that my fellow Ministers and I were again in a jubilant mood; that we were again debating plans to poison the enemy's drinking water by means of Multichoranicide, and were preparing to follow debate with action . . . when once more the Green Apparitions were observed in the skies! On successive nights their eerie trails flashed through the heavens, until a total of twenty-one had been counted! The Saturnians were back among us!

It will be remembered what a wave of terror shot through the earth. It will be remembered how many men cringed and whimpered, and how in many quarters the old habit of surrender to the intruders reasserted itself—so that millions had virtually capitulated even before the searchlight eyes of our visitors had glittered among them. Yet there were some doughtier hearts that held out. Throughout the earth, the "lightning machines" were kept in readiness, their radio-directed bolts ready to be launched at any instant. It was confidently maintained by our experts that not even the tremendous power of the Saturnians would be proof against the attack.

We had not long to wait for the initial assault. By means of radio and television, I was able to sit in my private office, and yet follow every detail of the hostilities. The Saturnians, having roamed the earth for several days without attempting any action, had given notice of their intention to appear at a given time at the Capitol grounds at Omaha, where they would have an important message to deliver to man. And it had been secretly agreed that their appearance on this occasion would provide an unexampled opportunity for testing the "lightning machines."

WATCHING through the televisor, I could see the wide acres of the Capitol grounds, looking deserted as a city of the dead. Not a human being was in sight; though high in air, on a level with the topmost trees, two sun-brilliant eyes were burning; to be followed by another pair, and another, and another, until twenty-one pairs were visible; while the ghostly outlines of the slender bodies could be seen only in a vivid light. Many minutes went by . . . the searchlight eyes did not move, though they seemed to grow even more dazzling bright; it was as if they were waiting, waiting expectantly for some all-important event.

Meantime, I also, glancing at my watch, was waiting for an all-important event. At precisely twelve minutes to five, I knew, the bolts of the "lightning machine" would be launched.

Impatiently I saw the minute hand touch a quarter of five; fourteen minutes of five; thirteen minutes. . . . Still the searchlight eyes did not stir; still the Saturnians were apparently unconscious of impending doom. Then suddenly, above the lawny spaces of the Capitol grounds, a great sheet of flame burst through the air—a blade of scintillating, white heat that leaped toward the Saturnians with incredible, with irresistible speed. It passed—and, where I had expected only emptiness, twenty-one pairs of searchlight eyes were burning as before!

Another blade of devastating white started through the air—but suddenly, as if it had struck an invisible wall in the atmosphere, it wavered, stopped, and fluttered out. . . . And over the radio there came strange rattling tones of mocking laughter. Then, almost instantly, a gigantic column of blue fire jutted heavenward just above the searchlight eyes, and divided in such blazing lightnings and such roaring thunders as this earth had probably never experienced

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before. The Saturnians were answering blast for blast!

After the thunders had died down, and after a long, appalling silence, the uncanny voice of Saturnian leader was ringing in the radio:

"O earth-men, O earth-men, your follies multiply each minute! Do you think that with your childish little lightning-sparks you can daunt us?—daunt us, whose electical powers could tear your little planet to shreds? No, earth-men, you only amuse us! You only amuse us, and we need amusement, for our hearts are sad.

"WHAT is it, O earth-men, that we have seen here upon return? During ten of your years we have labored to bring you nearer to civilization. We gave of our time and our wisdom, and abolished the greed and strife and injustice that were corrupting your lives. Then, in the vain hope that you were reasonable creatures antd would profit from all we had taught you, we left for a year or two —only to find that neither your intelligence nor your honor could be trusted. Like beasts that slink back to the filth of their lairs; like worms that crawl back to their ancestral mud; you returned to your slime the instant we left you. So now, O earth-men, the question arises in our minds: shall we give ourselves to you once more, and lift you again toward the skies?"

There was a pause, during which the heavens flashed and glittered with the incandescence of darting shafts of white lightning.

Then again the voice of the invader was heard, sonorous and hollow across the radio:

"But my companions and I have just conferred, and have decided that, after all, our ancestors were right in supposing the earth to be an insignificant planet, unworthy of attention. How can it be worth while to save you earthmen, since you will not put forth a finger to save yourselves, but go back to your old brutish ways, the instant our backs are turned? If beings so unenlightened wish to destroy themselves, why in the name of a better universe should we interfere?

"So farewell, earth-men. We leave tonight for a more promising world. Nevertheless, we thank you for some valuable instruction. We bear back with us to Saturn the materials for a paper on: THE PREJUDICE AGAINST CIVILIZATION: A Study in the Instincts of Earth-Men."

There was another gust of harsh rattling laughter; then all grew silent. The searchlight eyes gradually became dim, and faded to invisibility; there was a final flicker of blue lightning above the treetops, and the Dynasty of Saturn had become a thing of history.

With a sigh of relief, I rang for my Secretary. "Bring me the latest figures on the Multichloranicide tests," I directed, when the man appeared. And as he left the room, I swung contentedly back in my swivel chair, smiling in high satisfaction with the world and with myself, for now that the "Men Without Shadows" had withdrawn, there would be nothing further to interfere with the successful prosecution of the Intercontinental War.

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The Man Who Stopped the Earth

By HENRY J. KOSTKOS

This story, by one of the recent acquisitions to what we may call our staff of authors, is very short, but will be enjoyed greatly by our readers. There is much art in the production of a very short story to make it a true narration and bring it to a crisp ending. Our author has certainly succeeded in keeping up what used to be called the unities and brings about a good climax.

SOLEMNLY the three grey bearded old men filed through the door into the dim interior of the laboratory. The grim lines on their faces did not relax as they gathered around the amazing combination of coils, wires, motors, tanks and tubes that filled the large room in studied disorder. The bluish glow from a mercury vapor lamp illuminated the meter dials on the dull black switchboard and cast a weird tint over the wrinkled faces of the three scientists. A musty odor, that might have come from a newly opened tomb, hung like a blanket of death over the scene.

As his stooped frame bent low over the galvanometer of the electron gun Markrum said:

"There is much danger, Rizzurt, in performing the Great Experiment."

The man he addressed pushed this long hawk-like features close to Markrum's face. His eyes were alive with a thousand pin points of fire and his sallow skin reddened into an angry flush.

"Did I not tell you that not a single inhabitant of the earth will be harmed? Must I repeat the test over and over again to convince you? Wirrtel has no childish doubts, why should you have any?"

Wirrtel looked sidelong at Markrum, his white beard sweeping across his chest.

"Rizzurt is right. I have no doubts. But to convince yourself, make your own tests."

Markrum dropped his head in resignation. With a heavy heart he started the small high tension generators which lit up the tubes of the atom isolagraph. There was a silvery tinkle of broken glass as his nervous old hand knocked over a small flask, then taking a grip on himself he dexterously made a series of adjustments.

Then he straightened up and shuffled towards the control board, the nails in his shoes scraping audibly over the titles of the laboratory floor. Rapidly he threw a switch in and out and swiftly read the oscillating needle on the galvanometer dial. Each reading he entered in a scrawly hand on a pad of paper, while his two colleagues watched with glaring impatience.

Finally Markrum was satisfied. He sat down at a bench, and lost himself in intricate calculations. The two waited but said nothing. Then Markrum glanced up; his voice was harshly discordant:

"I have repeated your experiment, Rizzurt. Much of your wave atomic theory I am in perfect agreement with.

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But there is a serious error in your atom equation. The complex quantity *psi* that you interpret as . . . ."

"Enough of your insults, Markrum. How dare you make me out as an incompetent dabbler? I am the great scientist Kirkland Rizzurt; take care how you speak to me," he bellowed, his beard bristling as he thrust his chin pugnaciously towards the other. Then with a toss of his head he added defiantly. "The Great Experiment will take place at once! I have locked the door; you can not get out."

Rizzurt stood upright under the mercury vapor lamp, his face sinister with a fanatic light. Then like one pronouncing a sentence of doom he shouted above the banging of the shutter as the night wind outside whistled under the eaves of the frame building. A flash of lightning foretold the coming of a storm and distant thunder rumbled menacingly above the tearing of the wind.

"There must be no further delay. The time for the Great Experiment has come. I WILL NOW STOP THE EARTH!"

MARKRUM'S rheumatic old frame shivered as if he were cold. Wirrtel tightened his grasp on the edge of the laboratory table; beyond this he showed no emotion. But Rizzurt had been transformed into a creature of eyes, great fiery red, flaming, fanatic orbs; they became quizzical, inquiring, more rational, then pleading, as the man lowered himself heavily to a stool, more like a tired old man, weary of the world, burned out, unhappy. . . .

"Ah, Markrum, Markrum, if you would only understand. Here in our hands we have the means of doing a wonderful thing. Our earth moves in a complex path; it rotates, travels in its orbit around the sun, the sun carries us through the galactic system, the galactic system speeds us amid the spiral nebulae. . . . How fast are we going, what is our destination, what is gravity, can we exist outside of the orbit of the sun? These questions—think, man, just think—these problems, these unknowns, we can now answer."

By this time the storm outside raged with fury. The laboratory was lit up brilliantly by flashes of lightning. The three old men instinctively drew closer together.

Then Markrum said quietly with resignation, "You are right, Rizzurt. We are old men. All our lives we have labored with you to find the answer. And we grow older; see how my hand shakes as those minute cells of muscle and nerves become feeble, and are soon to die. We are not long for this world. Now I also say that the Great Experiment must be performed!"

He sat down heavily. The other two nodded their heads silently, sympathetically. With a quick practiced hand, Rizzurt pushed some buttons. In the distance the solenoid-operated remote-control switches responded. Then the great generators below began to hum ponderously. Another series of switches operated and the row of giant tubes glowed fiery red. Rizzurt drew a test arc fifty feet long, and the air was filled with the pungent odor of ozone.

Wirrtel scrutinized the meters through his silver rimmed spectacles.

"The voltage is constant, Rizzurt, and the tubes are all behaving beautifully. Now—any time—you can apply the Atomic Brake," he informed his chief.

"GOOD. The instruments that will measure our speed and direction of motion are ready. They will register as soon as I throw this switch, which will indicate that in this universe of billions of stars and planets, that tiny speck we call the earth, has stopped in

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its mad flight to nowhere and is content to view the aimless motions of the others," Rizzurt said philosophically.

Now, as if the elements had of a sudden become aware of these mites of men who were bold enough to tamper with the secrets of the universe, the crashing of thunder died away in a sullen rumble. The wind became soft and whining. The black thunder clouds passed swiftly across the face of the piteous white moon.

Markrum moved to the window and looked out. The clash of the last switch did not disturb him as he gazed out over a landscape now made luminous by the light of the moon. He could hear Rizzurt's labored breathing as the man bent low over his instruments.

Then without warning the orb of the moon streaked like a flash across the sky! Markrum gave a low cry and clutched his head; he was dizzy. But when he turned suddenly towards his companions he felt eased, his head did not bother him nor did his eyes. He looked outside again.

The moon was gone! And in the sky thousands of points of light had become streaks of fire!

"We have done it! We have done it! The movement of the earth is ceasing! All the stars and planets of the universe are rushing madly by. See, here on this dial," Rizzurt's voice was hoarse and the words came from his mouth, as if after great effort.

With a cry Markrum slumped to the floor. He had seen! That which he had feared had come true. The solid walls of the laboratory were crumbling into fine dust! The metal column against which his head was resting had become soft and yielding. And with horror he realized that the very flesh of his hands was wasting away, even as he gazed at them with slowly dimming eyes. He tried to see his companions; though they were but a few feet distant they were beyond the range of his vision.

"Rizzurt, Wirrtel," he called in a hoarse whisper for his throat was dry and it was agony to speak. Yet he knew that it was too late.

As if from far off came the faint answer. Was it Rizzurt's voice, or was it the voice of his own soul? He would never know. But he heard it, and with calm satisfaction he listened, listened as the roof of the laboratory crumbled and crashed down upon him, as the very floor under him became powder, as the earth itself trembled violently and slowly crumbled into dust.

"Markrum. Markrum, you were right! Did you not warn me that the atom obeyed but one law? That the atoms and the electrons are kept within their orbits by electromagnetic force that is generated only when all matter, everything in the universe, is hurling through the magnetic field of space at incredible speeds. What happens when you stop turning an electric generator? The magnetic forces cease and there is no current generated. It is thus likewise with the earth.

"You have truly evolved a stupendous theory. And I have unwittingly proved it for you, though there be none left to profit by it."

Then as Markrum's old body shriveled until nothing but the eyes seemed to be alive, those eyes flashed out for the last time over the world that had ceased to be. Those eyes had looked upon the breaking down of matter into its molecules, then the molecules became atoms, and as the chemicals of his flesh and bone united with the soft plastic substance that was once the earth and the fulness thereof, these atoms broke into their constituent protons and electrons and then like a puff of smoke under

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World Gone Mad

By NAT SCHACHNER

This story has a suggestive title and we are sure that many of our readers will consider that the world went mad during the World War and the madness of war is one of the stupidest performances of man and many feel that today a change for greater simplicity would be a step in the direction of terrestrial sanity.

DONALD RUSSELL sank back in his comfortable arm chair with a sigh that connoted deep content. He was in the bosom of his family, happy in its undercurent of affectionate intimacy, his pipe was a glowing ember and drawing well, the night was mild yet tonic in its springtime fragrance, and around him spread the well-loved panorama of multi-colored New York. What more could any reasonable human being desire, he queried silently, and forebore an answer in the sense of well-being that flooded him.

He puffed quietly at his pipe, drinking in the ever-shifting beauty of the scene. There was something of the artist in Donald, even though officially he was an inspector of the finished ferro-concrete blocks used in building operations. Fortunately his work day was only four hours long, otherwise the rigid monotony of testing endless miles of blocks for resistance to stresses and strains would have driven him mad.

His soul delighted in subtle nuances of color, in the ceaseless interplay of light and shade, in the gay display of humanity against noble architectual backgrounds. That was why he had carefully chosen his home on the terraced roof of the inconspicuous Metals Building, twenty-four stories above the park-like surface of New York.

From where he sat, with the alumino-quartz sectional shutters rolled back, he could envisage the lofty towers of the metropolis, thrusting their arrogant spires thousands of feet into the air. Each glowed with an inner light, diverse in coloring, that etherialized and made translucent the solid ferro-concrete. Yet he was not too far above the green and flowers of the formal parks separating the cloud-piercing structures, to be unable to distinguish the gay charming people who sauntered, brightly hued, through the spring evening. The sounds of their careless laughter filtered up to him. Above, across the brilliant stars, flitted green and gold specks that were airplanes, cleaving the various traffic ways, each laden with its human passengers enjoying the spring night or with perhaps a cargo of freight.

Donald felt a surge of affection for his fellow-men, for all mankind, who had made possible this glorious, peaceful scene.

"That's it—it's so peaceful, so safe!" He thought aloud in his abstraction, unaware that he had spoken.

"What did you say, dear?" The gentle voice of his wife startled him out of his maze. He smiled a bit sheepishly at the uplifted steadiness of her gaze, her finger still marking the place on the thin-beaten metal page of the book she had been reading.

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"I did not know I had spoken, Martha," he explained. "I was just sitting here taking in all this—" his hand described a sweeping arc over the great city, "and it came to me that what makes our life so delightful is the feeling of safety, of peace, that enfolds us all. We know that we are leaving a marvelous heritage for our children." His eye traveled fondly to the sturdy little boy of nine who was playing raptly with a tiny airplane, unheedful of his elders. "And we know that they will live to enjoy and improve upon it in security."

"Stuff and nonsense!"

Donald started at the explosive violence of the ejaculation. He had almost forgotten his father. Martha bent down to her book again to hide a little smile. She was used to old Peter's irascible interjections.

"What is, father?" Donald asked patiently, though he knew very well.

"It's all stuff and nonsense, I say," the patriarch repeated in his unexpectedly strong, bass rumble. His eyes flamed from under thick, shaggy brows. "You are all living in a fool's paradise; you and your fine civilization. The next war will bury it all so deep they'll be sending expeditions in the future from some other planet to dig it out again and philosophize over the dead ruins. Safety—peace," he snorted his contempt, "they are words; mere words. I give you twenty years—no more; and then—the end!"

HE warmed to his tirade. "Why are the nations building countless thousands of rocket planes, huge bombers, God knows what other fiendish weapons of destruction? United Europe has a concentration of fifty thousand; the Sino-Russ as many, Australasia maybe half of that; and the Americas—our own philanthropic, progressive, world-minded Americas—at last count, seventy odd thousand. What about the new radite explosives, one bomb of which could level a city; the terrific poison gases? What are all these prepared for, if *not* war? One little spark, and the world will go out like a flame. *That's* what your scientific civilization is headed for—destruction."

The old man subsided, exhausted from his effort.

Donald chided him affectionately, "Now, now, dad, you know these long speeches tire you out dreadfully. At your age you should be content to float gently on the stream of life, and not worry about viewing things with alarm. You'll find that our generation and the generations we beget are more reasonable, more scientifically minded, more *civilized*, than the one you were born in. War to-day is unthinkable, hideous. It is an outworn barbarism that the human race has sloughed together with many other cherished prejudices and manias."

Martha nodded her head fondly at her husband's cogent reasoning. Much as they loved old Peter, he *did* get tiresome at times with his endless scoffings at their present existence; with his staunch refusal to accept the progress of the world since the days when he had been a young man. There was a favorite phrase of his that especially irritated her with its illogicalities. Ah, there it came—it was inevitable.

Old Peter had burst out: "Poppycock, fine talk! Let me tell you something, son; you can't change human nature. In my day we also thought and spoke the same as you; even though every country—and there were many little ones then—was armed to the teeth. We thought it didn't mean anything; there couldn't be any war. And then—smash—it came. I was through it, I know what it was like. You can't realize the beastliness, the fury of the thing, from reading

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books. And, mark you, we had crude, primitive weapons, compared to what has been evolved to-day.

"That's the curse of our present science. It has brought to life mighty engines of destruction, and the nations have built them. Sooner or later some hot-headed fool, or group of fools, will itch to put them in motion—as if they were playthings. Why, I can remember—"

But Martha was no longer listening. Old Peter had been over the ground so many times. Her eyes strayed to the time signal. It flashed the hour of twenty-one.

"I wonder what's keeping Allan," she worried, "he telewrote he'd be here at twenty, and it's an hour over now."

Allan was her oldest son, in the Government Service, private secretary to the Communications Chief.

"Nothing to be alarmed about, Martha," Donald soothed, "no doubt he was detained at Washington. He'll be along any minute."

The mother sighed wistfully. "I'm looking forward to this little visit of his so much, I don't want to lose a minute of it. We see him so little."

"That's the sacrifice we must make for having a son in Government Service. There are no four-hour days for them."

The boy, Anders, had abandoned his toy, was tilting his small head back at the heavens. A green flash dissociated itself from the darting midges, hovered high overhead, and commenced a slow vertical descent.

Anders' clear childish voice rose to an excited shrilling.

"Look, mother, he's coming; big brother Allan's coming. See!" He pointed a chubby finger at the dropping helicopter.

Donald peered upward. "By George, the boy is right. That looks like Allan's plane."

Martha felt unduly relieved; she had not admitted even to herself how worried she had been. Old Peter's fierce gaze, heated by his favorite argument, sheathed itself suddenly in unwonted tenderness. The little boy was dancing around, clapping his hands. It was easy to see that Allan was a well-loved favorite in his family.

THE helicopter came gently to rest on the small landing area outside the alumino-quartz framework. A tall, rather good looking young man dismounted and was immediately overwhelmed in a blur of small legs and arms. He picked up the wildly wriggling youngster, gave him a bear hug, and deposited him on the terrace. Allan came toward his parents and grandfather, with little Anders hanging to his jacket.

Martha was enfolded in a long kiss, from which she emerged to look at him with fond pride. But mother-like, she chided him gently.

"You're late, my son."

Allan was shaking hands with his father. "I'm sorry, mother, but I didn't think I could get away at all. I just managed to make it."

"Well, you are here, and we're thankful. We've looked forward to this week with you for a long time."

Allan said nothing. Old Peter, seated in his chair a little way off, was watching him keenly. He saw the little start, the hesitant manner of his grandson as he was engulfed in the quick chatter of a reunited family, the frowning abstraction with which he limited his speech to monosyllabic answers. So unlike the genial, ready-witted youth. Old Peter knew there was something wrong. Allan was biting his lip nervously, was trying to say something against the light

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patter of his parents; yet didn't know how to begin.

"Allan!"

"Yes, granddad."

"What's wrong?"

The young man started. "Why—er—nothing."

"Nonsense, you can't come that over me. I'm too smart for you. You've got something on your mind and you're afraid to say it. Out with it." Old Peter was dictatorial.

Allan hesitated, his face preternaturally grave. "Well, I—I have to go back to Washington in half an hour; there's some special work I have to do."

Martha burst into an agonized: "But, Allen, your vacation; you promised—"

"I know, I know," he interposed hastily, "but something has come up. Next week I'll be able to make up for it. I'll—"

"Allan, come here." The old man looked more than ever like a patriarch out of the Bible. His grandson came obediently.

Those undimmed eagle eyes seemed to search his very soul. "Allan, you're *not* coming back next week."

"No grand dad," the young man said miserably.

Donald took a step forward, but old Peter disregarded him. Relentlessly he continued his inquisition.

"You had better tell me; you know even as a little lad you couldn't lie to me."

Allan mopped a suddenly perspiring face; there was agony on his brow. His parents watched with anxious incomprehension; even little Anders was round-eyed; but the old man's eyes bored steadily into him.

The tortured young man gave way completely. "If you must know—it's a Government secret—but I can't, I simply can't keep it from you. We—that is, my Chief expects war in forty-eight hours."

If he thought his words would prove a radite bomb, he was disappointed.

His father and mother simultaneously echoed: WAR?"

Then Donald laughed indulgently. He clapped his eldest on the shoulder. "My son, now I know you need a rest. You and your Chief have been scaring up bogies between you. War! Ha! ha! In this civilized age of ours. Impossible! With whom, and for what, may I ask? Nonsense! I didn't know you had taken, as he knew it, your grandfather's talk of the world, so seriously."

Martha had smiled too through her quick alarm.

"Listen to father, dear. You know he's right. Just you come with us to the North Woods for a few days and you'll feel fine again. I'll call Washington and tell them not to expect you."

Little Anders chimed in. "War? What a funny word; what does it mean, brother Allan?"

THE young man looked dully from one to the other. He could see they did not comprehend. Neither, for that matter, he reflected bitterly, had he, until these last few days when the Cabinet of the Americas had been almost continuously in secret session.

Old Peter had risen. His massive limbs still supported his rock-hewn body.

"I knew it," he thundered, pointing a bony forefinger for the very heavens to bear witness, "I foretold it, and you laughed at me. WAR, *that's* what's coming! I knew that human nature was the same as when I was a boy. There has been peace and prosperity too long; the poor fools are bored with themselves; they have playthings they must use. WAR!"

His voice broke to a whisper, as if there was magic in the word. Strangely enough, a certain exaltation lit up his face as with a glow. He sank back into

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his chair. Memories of that earlier conflict of civilization obtruded; the World War, some sixty years ago—time-mellowed memories. There was a stirring in his ancient blood; once more he heard the fanfares of the bugles, the tramp of marching feet. He hummed beneath his breath, an old forgotten tune—*Reveille!* The virus was in him, flaring up again.

But Donald, his son, had never known the mass-hysteria called War.

"Allan," he said anxiously, "you are not serious, are you?"

The young man nodded. "Yes, father. Last week a mysterious explosion took place at the rocket field near Bordeaux. Over five hundred planes destroyed. Europe's Council went mad; accused us—think of it—of setting it off. We replied as befitted the dignity of our nation. The next day, at Pekin, a thousand planes detonated. The Sino-Russ Soviet frothed at the mouth; sent an insulting message. We answered with restraint, disclaiming all knowledge. The following day, as if by clockwork, Australasia reported a holocaust at Sidney, and blamed us for it. It was all so damned silly."

"We offered to appear before the League of Nations Court to prove our innocence. They all refused. Then, only yesterday, our own base at Denver detonated. Fifteen hundred rocket-craft and bombers, and ten thousand men." His voice grew harsh. "Earl Fenton, my best friend, was stationed out there."

"GOOD God, son, what are you telling us?" Donald felt his world crashing about his ears. "How is it we haven't heard a word of all this on the newscasters?"

"Each nation has established strict censorship. Nothing was allowed to leak out."

"But—but," Donald stammered, trying to orientate himself, "surely the nations of the world are too civilized, too reasonable, to blame each other for these disasters. Can't they see that it all may be only a series of coincidences; or at worst, some band of fanatics trying to stir up trouble between them? Of course they'll get together in teleradio conference, and iron the thing out amicably. Won't they, son?"

He did not realize that his tone was imploring; that he was trying to salvage his belief in the essential sanity of mankind.

Allan laughed; a hard, bitter laugh.

"Of course those foreign fools know we had nothing to do with their silly explosions. But we *know* who was responsible for the awful thing at Denver."

Martha asked timidly. "Who, dear?"

"United Europe and the Sino-Russ."

"Now at last he had his sensation.

"Ridiculous, absurd!" Donald stormed. "How can you say such a thing. What proofs have you?"

Allan faced him calmly. "Plenty. A man who got out alive said he saw a fellow loitering near the Central Hangar just before it happened."

"What about it?"

"That fellow was a Chinaman." Allan burst out raging. "Damn his yellow soul! Lucky for him he went up in little pieces, or we'd have—" His clenched fists showed the seething torment within.

Donald looked at the boy who was his son in astonishment. Was this the smiling, gentle lad he loved and thought he knew?

"Are these all the proofs on which our country is going to precipitate a world war?" he asked in a sort of wondering awe.

"They're enough." Strange how hard Allan's voice was. "It's time we taught these foreigners a lesson."

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Donald clutched at a last straw. "But the other countries surely aren't going to fight."

"Aren't they though! We've sent spies out thick as flies. They report tremendous activity in every rocket-port."

Martha said quietly: "And you, my son; you think all this is right and just, to exterminate civilization on such flimsy grounds."

"Such flimsy grounds? Mother, how can you!" Allan burst out passionately. "An outrage has been done our country; our honor has been insulted."

Old Peter sat up suddenly; an old war horse snuffing the shibboleths of old. Honor—outrage—it was sixty years since he had heard those terrible words.

"Human nature! Human nature!" he mumbled. "It hasn't changed a bit. Give them words, and the young will go out to die with a song on their lips."

A cold fear clutched at Martha's heart. She cried heart-breakingly: "Allan —Allan, you are not—not—"

For the first time the shadow of uncertainty passed over the youth's face. He carefully avoided her beseeching look.

"Yes, mother," he muttered.

"Oh God!" That was all; but it tore through the thick silence like a jagged edge.

Donald spoke decisively. "You are not going."

"I must; I've received my orders. At midnight I report to the air-base at Newport. If it weren't for the Chief, I'd have been there now, instead of slipping away to see you."

Outside, the planes gyrated as gayly as ever, the laughter of the multitudes floated up, but on the terraced roof there was a paralyzing silence. Only old Peter was humming softly—a forgotten air: "It's a long way to Tipperary; it's a long way to go-o!"

Allan felt embarrassed, constrained.

"I'd better be going," he said uneasily.

Old Peter arose. "Lad, you are going, and we are staying. But we shall never meet again, nor shall anyone ever meet again. The world is doomed—by man's madness, and the terrible machines he has invented in his arrogance.

"Nonsense," his grandson retorted confidently. "The war will be over in short order. The American rockets will bomb every city of the enemy countries into ruins on the first flight. I've seen the plans. They'll be compelled to sue for peace."

"And what do you think the enemy rockets will be doing to our cities in the meantime?" Donald queried softly.

"Our Cabinet has evolved impregnable defenses," Allan asserted positively. "The Chief has assured me so. The Enemy planes won't come within a hundred miles of our coast."

"The world moves and does not change; word for word the madness runs its course," quoth Peter.

Allan glanced hastily at the time signal.

"Good Lord," he cried in pretended astonishment. "It's twenty-three o'clock. I must get going. Good bye, everybody."

He almost ran to the helicopter.

Martha came out of her stupor, started forward.

"No, no, my son, my Allan, don't leave us!" Her voice rose to a shriek.

Allan pretended not to hear. His trembling hands fumbled at the controls. The wings unfolded, the plane shot vertically up. He was gone!

Donald stared after the lessening speck, dazed. Little Anders, forgotten in the tenseness, was crying. "Big brother, why must you go so soon? You didn't fix my airplane." Martha had slid quietly to the floor in a faint. Old Peter's eyes were glazed with the dimness of the past. A dirgelike refrain

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quavered in his throat—*ta ta—ta—ta—ta ta ta.* TAPS!

THE Russell family passed a sleepless night. Six the next morning found them dull-eyed, heavy.

"I can't believe it, Martha," Donald burst out. "Allan must have been exaggerating."

The boy, Anders, was looking down through the quartz-bottomed viewpost at the park areas below.

"Come here quick," he called. "See the funny things being pushed around in the street."

They peered through the fused quartz lens which magnified in sharp detail the crowded scene below. The parks were hives of activity. Great tubes, long and narrow, were pointing their wicked snouts to every angle of the heavens. Business-like dumps of shells lay next each monster—Dongan shells that exploded in inverted cones at any desired elevation, and obliterated everything within a cubic mile. Enormous directional beamcasters rested on swinging carriages, ready to blank out power waves and bring bombers crashing to the ground. Groups of grim khaki-clad men were scattered in organized disorder. And the voice of the sergeant rose raucous in the land. Although the hour was early, the parks were jammed with people; every one of the towering pylons had emptied itself of half-curious, half-frightened humanity.

Above, the drab morning sky was a maze of tiny wasplike pursuit planes. Single seaters they were, geared at five hundred miles an hour, carrying tracer shells that disintegrated into a thousand fragments on contact, and little tubes of thick oily poison gas that clung tenaciously to an enemy bomber, wrapping it in a choking, viscous ball from which there was no manner of escape. Hundreds and hundreds of planes wheeled and echeloned—a brave array in fine array.

Donald turned a gray, drawn face to his wife. "It's true then. The impossible is happening. War in our civilization!"

Martha rocked gently. "Allan, what will happen to our poor boy?"

Old Peter said slowly, very unlike his usual explosive self. "The same that will happen to all of us. We are doomed—the human race is doomed—irresistible forces of destruction are being unleashed."

"But you heard what Allan said," Donald expostulated. "Look around us. Surely no enemy rockets will be able to penetrate these defenses.

"POPPYCOCK," his father said contemptuously. "Wait until the rocket planes come slashing down at a thousand miles an hour, and you'll nee how futile these so-called defenses are. In my day they called the forts at Liege Antwerp impregnable, and the Germans blew them wide open in hours."

Martha gathered Anders into her arms with an instinctive gesture of protection.

Donald strode to the tele-radio; tuned in the newscaster. He clung desperately to the hope that this could not be; that at the last moment the nations would realize their folly.

The stereoscopic screen sprang into relief. A correctly silken-clad newscaster, helmeted air-phones clasped to his head, his ordinarily expressionless features tinged with suffused excitement, was saying:

"They are coming fast. Once more out directional vibrators have picked up the enemies' rocket fleets. Forty thousand from the Sino-Russ ports are cleaving the stratosphere at twelve hundred miles an hour. At that speed they'll hit our defenses in less than two hours. The European fleet of thirty thousand is

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just taking off. Australasia has ten thousand heading for the Southern Americas. All the world is against us. But there is no cause for alarm. Commanding General Merriam requests me to issue a statement. I shall read it:

"To the people of the Americas. The enemies of our glorious nation are seeking to destroy us. They have insulted our honor, out-raged our citizens, conspired insidiously against us under the mask of friendship, and are launching their fleets without even a declaration of war. Treaties, the peace of the world, mean nothing to them; they are merely so many scraps of paper. They thought to catch us napping; to find us unready.

"But they have reckoned without our brave army and rocket corps. When they come, they shall learn to their sorrow just how ready we are to meet their cowardly attack. And more. The General Staff of the Americas have acted on the principle that the best defense is a swift attack. Our mobilized rocket craft have already been launched into the stratosphere. Every city of the enemy world is marked for destruction.

"I feel that every redblooded, patriotic American is behind the Government in meeting with a dauntless front this cowardly, unprovoked attack upon our liberties. They have commenced a war against a peace-loving people, and war they shall have—to the uttermost.

Commanding General Merriam,
Chief of all the American Forces."

Donald gestured despairingly. "The madness has seized them all. We are in the grasp of forces beyond our control."

Martha was weeping quietly. Intuitively she personalized the impending tragedy. "My poor Allan, what is happening to him?"

"No doubt he is in one of the squadrons flying the stratosphere to shower bombs and poison gas upon the inoffensive people of some great civilized city," Donald answered bitterly. "What can he do but obey orders. He is but a cog in a vast machine of destruction."

There was a light in old Peter's eyes. "Old times," he almost intoned, "old times—I never dreamt to see you again. Ah, if I were only young again." He threw back his shoulders, winced at a rheumatic twinge, and relapsed into a grumble at this sign of his mortality. "Ah well, I suppose I'll have to be a bystander. These milk-fed fellows, brought up on pap and peace, how they'll bungle this man's war!" He brooded in silence.

Martha, the ever practical Martha, came out of her tears.

"What shall we do, Donald? The newscaster said the enemy will be at New York in about two hours."

"Good Lord," groaned her husband, "I haven't thought of what we can do." He seized at straws. "Of course you heard what he said. There's absolutely nothing to worry about. They'll never get through our defenses."

"Do you believe him?"

Wifelike, Martha had placed an unerring finger upon a small doubt hidden in the back of his consciousness. Little worried lines appeared on his forehead.

"NO, I don't," he finally admitted. It hurt him to say that. Old Peter would crow at his son's sudden surrender to all he had been won't to scoff at. But the patriarch was engrossed in his own dreams.

"Then we'd better pack whatever we can, and take off for the interior. Come, little Anders, get yourself dressed in a hurry."

"I don't want to," the youngster protested vigorously. "I want to stay here and see the beautiful airplanes."

"You must, darling. Bad men are coming to kill us if we don't hurry."

"I'm not afraid of them," he boasted.

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"Big brother Allan will kill them first —poof—poof—just like that."

The quick tears brimmed in the mother's eyes, but she held them back unshed. She grasped her unwilling offspring by the hand, led him firmly to the dressing compartment.

Donald observed her quiet untheatrical heroism with mingled admiration and growing anxiety. What *would* happen to them all?

He turned to his father, shook him gently. Old Peter came out of his revery with a little start.

"You'd better get ready; we're leaving right away."

"Leaving?" Old Peter echoed bewildered. "What for? Where?"

'There'll be an attack on New York within an hour. We'll head for the safety of the interior."

Old Peter shook himself. "Yes, you had better go. You must protect Martha and little Anders."

"Get dressed then. Take your personal things and valuables. There won't be room for more in the helicopter."

Old Peter said slowly. "I'm not coming."

Donald looked at him incredulously. "Don't you understand what I've been telling you. The enemy is almost here."

"I understand you perfectly," his father replied with more than a touch of acerbity. "I'm not deaf. I'm not coming."

Donald was suddenly weary. He did not feel up to futile arguments with what seemed like senility.

"Why not?" he said.

Old Peter rose solemnly from his chair.

"I am an old man. At best I have but few years left on earth. Civilization, the world itself, is on the verge of extinction. I have long seen it coming. Why should I seek to flee, to embrace unknown perils? Even should we survive, by some miracle, it will be to a strange new world of struggle and terror, of bestial ferocity and savagery. I have lived my day, and found it good. I would not seek to extend it. You are in the prime of manhood, vigorous. You have a wife and children to safeguard. I would be a hindrance. Go with my blessing, whatever that's worth. I stay to see the finish."

Donald was overwhelmed. "What nonsense you are talking," he said lamely. "It is suicide to remain."

"It is just as much suicide to go," the old man pointed out.

They were quarreling violently, ludicrously, when Martha came out, in her flying gear, leading little Anders by the hand.

"What's the matter; why aren't you both ready?" she queried in surprise.

Donald was red in the face. "Old Peter's gone crazy. Says he won't go."

"And I won't," the old man retorted defiantly. "I want to go down with your fool civilization. It'll be a great sight."

They glared at each other.

"Oh you two children," Martha was exasperated. Every moment was precious now. "Hurry now and stop your nonsense. We'll all be killed."

And like scolded children, they turned sulkily to obey.

Beneath, the great city was a chaos of mad movement. The populace had awakened to its peril. The parks were a seething mass of running, shouting people. Helter-skelter, blindly they ran, milling back and forth, shoving, pushing, weaving into an inextricable tangle.

CLOUDS of helicopters took off from the roofs of the high structures, midges that soared desperately to avoid the impending enemy. Straight up they went, frantic with fear, to the traffic lanes already preempted by the monstrous bombers and pursuit planes.

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Hundreds crashed into the heavier war vessels, came fluttering back to earth like wounded birds. One great bomber exploded in mid-air, flared detonatingly into oblivion.

The Russell family were clustered now in their helicopter. Donald was working frantically to get it started.

The tele-radio sprang into life behind them. It had been left open in the hurry of their departure.

"People of New York," the newscaster shouted, "take warning. Your cowardly flight is impeding the work of defending the city. Our air force has no room for maneuvering. You are required immediately to descend and remain quietly in your homes. Those who disobey this order will be fired upon."

Donald seethed with rage. He shook his fist futilely at the pictured newscaster, at the swinging aircraft. Already the tiny helicopters were throwing out their vanes, dropping back to their fate. Some there were, who, mad with fear, or more daring than the rest, sought to escape in swift flight. Little puffs came from the great bombers, and the fleeing planes disintegrated into a rain of tiny fragments before the watchers' horrified eyes.

"Old Peter was right. We are destined to remain, for whatever befalls us."

Martha's voice was steady as she climbed quietly out of the plane. But little Anders cried out at the fierceness with which she hugged him to her breast.

Because they could do nothing else, the Russell family stared miserably at the clouds of war planes—the business-like tubes below, stripped for action. If only the defenses would hold!

The newscaster gleamed on the screen. He was stammering with the importance of his message.

"The enemy rockets have divided, five hundred miles out. Flights of them are shooting swiftly for every important city in the Americas. Two thousand are heading straight for New York. Only a half hour now, and they will strike. Our brave forces are going up to meet them. There is no doubt of the issue."

"No, there is no doubt," old Peter wagged his head. But he did not mean the same thing as the self-important announcer.

Above, five hundred pursuit planes shot suddenly aloft, rapidly diminishing as they gained altitude. At the ten-mile level, the ceiling, they hovered motionless, tiny stinging wasps. The huge bombers held their position, quiescent, five miles up.

The newscaster could be seen to cock his head, listen absorbedly to the message delivered in his airphones. Suddenly he gave vent to a most undignified whoop.

"Listen folks," he shouted, reverting unconsciously to the early patter of the air. "I've got news for you, glorious news. Our rocket flights have hit Europe, and oh boy, what they've done to it! London is a mass of wreckage, Paris is in flames, Berlin is level with the ground, and Rome, why, they tell me you wouldn't know it ever existed. Hurray!"

He snatched off his airphones, and danced crazily on the screen. In calmer moments it would have been utterly ludicrous.

"The poor, poor people." It was just like Martha to think only of that in the hour of her country's triumph.

Donald was exalted out of himself. A curious atavistic strain in this man of peace.

He turned almost savagely on his father. "There, what did I tell you. We've won! You hear me, old croaker," he almost screamed, "America has won!"

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Old Peter's eyes flashed. "Aye, we've won, and lost. Look!"

His arm raised solemnly to the leaguered sky. Unwillingly their glances followed.

A thin silver pencil of light streaked athwart the sun's face in a long graceful arc. There was another, and another, until the whole eastern sky was a blaze of fiery shooting stars.

"The enemy has come!"

Fascinated, they watched the meteoric approach, unmindful of their peril. The elongated flashes grew steadily on the sight. Now they were tiny shining cigars, blazing with the unthinkable speed of their hurtling through space, swooping down through the stratosphere upon the doomed city.

The pursuit planes hung steadily on their ceiling, waiting.

The great thousand-foot rockets, now swelled to huge glittering, streamlined war engines, threw out wings; their propellors bit into resistant atmosphere with a screaming whine that shook the air with vast concussions of sound.

This was the moment that the defenders had waited for . Like the wasps they seemed, they threw themselves upon the invaders. Tiny puffs of smoke spat forth, disintegrated into thousands of little baby balls. One clung to a hurtling shape; the huge rocket shuddered, and burst open into a rain of fragments. More of the deadly puffs found their mark, and the air was dark with smashed invaders.

But the tremendous speed of the diving rockets brought the vast majority safely through the barrage, left the pursuit hopelessly behind. Down toward the five-mile level they zoomed, dreadful engines of destruction.

The motionless bombers roared into life. Tongues of flame darted in all directions, until the air level seemed one vast lake of fire. The enemy rockets dived headlong.

The horrified watchers saw tumbling masses of burning wreckage, saw rockets and bombers linked in furious death grapples. The huge tubes below joined battle. Tons of deadly radite flung high, exploded in cyclonic cones that smashed to destruction everything within range. Friend and foe were whiffed into extinction. Radite was not discriminating.

THE sky was aflame with darting, plunging, reeling shapes. The noise was unbearable. It seemed as if human eardrums could not withstand the tremendous concussions. The little family clung to each other now, stunned, stupefied beyond suffering.

From out the terrible five mile zone zoomed hugh bullet shapes. Rockets! Hundreds only where there had been thousands! They flattened their courses, shot in sweeping circles over New York. The radite tubes belched their contents, the downswooping pursuit planes took their toll, but the remnants held steadily to their course.

Donald knew what that meant. He snatched the trembling child into his arms, seized Martha's arm.

"Quick," he shouted. "Down below, or we're dead." He could hardly be heard in the inferno of sound.

Old Peter seized him violently. "You're crazy," he screamed, his white hair fluttering in the cyclonic wind. "Stay right where you are. T'hell with their bombs. It's their poison gas I'm afraid of. That'll catch every living thing below."

Martha turned her white brave face to her husband, nodded to show she agreed with his father. She could not speak against the uproar. With a groan Donald stayed.

Little round things dissociated them-

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selves from the racing rockets, little round things that plunged to earth with breathtaking speed. A towering structure, dwarfed by the encircling vaster giants, buckled suddenly, crashed to the ground with a shattering roar. The old Empire State Building, Museum of Antiquities, was no more.

Detonation after detonation rocked the weary earth as one soaring pinnacle after another tottered on its base, disintegrated into shatterings of ferro-concrete.

Yet with half the city already in ruins, the soldiers manning the radite tubes that were still intact, held bravely to their posts; shooting with unhurried aim, picking off the enemy one by one. The parks were bloody shambles, hundreds of thousands of mangled bodies lay in distorted postures, or were buried under tons of wreckage.

Donald prayed with tortured intensity, he who had never been given to prayer. The old man's lips were working inaudibly.

The enemy rockets suddenly diverged, and as at a given signal, thousands of black pellets came dropping to the ground. Donald instinctively shuddered away from the expected earth-shattering concussion.

Nothing came. Only the normal roar of the radite shells. "Duds!" thought Donald joyfully, almost incredulously.

Then, surprisingly, the rockets turned tail, fled as if by a common impulse. Into the interior they sped, soaring up toward the stratosphere.

Old Peter's face was a mask of despair. "I knew it, I knew it," he moaned.

But Donald did not hear him. He was dancing insanely. The weight of terror had been lifted from him.

"We've won, we're saved. The enemy is defeated." He did not stop to wonder at the sudden flight. His stunned brain was unable to reason coherently. They were gone; that was enough.

OLD PETER glowered at him with furious eyes. "Fool! Fool!" he exclaimed in a terrible voice. "Don't you understand? Come and look." He seized his astounded son's arm in a grip of iron, literally dragged him over to the viewpost. As he was being hurried along, Donald found time to wonder at the fact that their voices had been so clear, so audible. Why?

Then it was that the silence struck him with a physical blow. The vast uproar was gone; only a deathly stillness, in which the sound of their footsteps rang unpleasantly loud, and Anders' frightened whimper rose thinly. A faint dread came over him, but he had no time to analyze it. Old Peter was literally shoving his head down toward the parks below. "Look, damn it, look!"

And Donald looked. The blood receded from his heart, and welled back in furious pumpings. A dizzy wave of nausea swept through him. It was true then, what his father had prophesied.

Below, where there had been soldiers and guns, thousands of frenzied people, noble parklands, there was now only a heavy greenish sea of vapor. A waveless horrible sea that obliterated everything in green, viscous folds. The silence of the grave was beneath; nothing stirred. Only the topmost branches of the trees showed like dark green islands against the lighter green of the gas.

Donald stared dully at his father. "Poison gas!" Strange how far-off his voice sounded.

"Yes."

The terrible scene drew his eyes like a powerful magnet. Good Lord—the tree tops, where were they? Gone. Only a dark menacing expanse of oily vapor.

"What is it, dear?" Martha cried in quick alarm.

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Donald had not known that his face had gone white. He drew upon his last reserve of courage.

"The poison gas is rising," he said quietly.

Martha faced him bravely. "That means—"

"That we have not much more time to live. It had been a good life, Martha. Let us not repine, only—" He glanced at little Anders, whose round eyes were blurred with frightened tears.

His wife stifled a sob. For myself I do not care, but my boys, they have just begun to face life, and now—" Her voice broke.

Old Peter shook a gnarled fist at impotent heaven.

"A lie! Man's progress—a lie! The beast was still dominant in him, and now—he is ended, self-destroyed."

Inexorably the gluttonous gas mounted, reaching for its appointed prey. The little group waited, mustering unsuspected fortitude, waiting, waiting for the inevitable.

A low-flying shape came swiftly out of the west. A lone plane in the silent immensities. A sudden hope flashed through Donald. Aid—rescue! He must attract the pilot's attention. He pulled off his tunic, ran to the edge of the landing area, waving it frantically.

The flier swerved sharply. He must have seen him. Donald redoubled his efforts, unable to hold back the blinding tears of sudden reaction. They would be saved.

The plane zoomed over the building, dropped a small black object. It missed the roof by inches, plunged into the depths below. There was a deep sudden roar, a blinding concussion of flame, the structure rocked in a dizzying arc, then the firmament fell down and hit Donald on the back of the head. The last thing he heard, or thought he heard, was a maniacal, derisive laughter from above.

Whether it was an enemy plane, mistaken in its way, that dropped the casual bomb, or an American flier, unhinged from the terrors he had been through, was never known. Unimportant too, for the result would have been exactly the same. Four silent shapes lay huddled on the terraced roof of the Metals Building; and the hideous green gas lapped ever higher against the sides of the structure.

The End

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the open sky, these charges, too, ceased to be.

Where the planet earth was but a few minutes before, now there was nothing but void.

FAR out in interstellar space, beyond the galaxy of stars that included the solar system, an observer might have witnessed a strange and inexplicable phenomenon. Not that the complete annihilation of such a minute speck as the earth would have been noticeable at such a great distance, but a star, the Sun, changed its position in the constellation of which it was a part and assumed a new location, while its solar system unbalanced by the loss of a planet, sought erratically to heal its wound. For the cosmic systems must balance.

THE END

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Buried in Space

By LAWRENCE SMITH

NATURE holds out to man her secrets, locked in her clenched hands, and she has but one finger open at a time. So said that distinguished astronomer and writer, Camille Flammarion, who, during his life entertained multitudes of Americans with his graceful pen. One by one scientists had pried open those reluctant fingers and found there the art of navigating the air, the wondrous radio, the X-ray. They had penetrated into the close-locked atom and revealed the marvels therein. The cold and black depths of the sea had been explored and the barren wastes of the Poles had been made familiar to the world. There was no place upon earth that man had not set foot on, and he now turned his attention and his inventive genius to travel in interplanetary space and the problem of neutralizing the earth's attraction, which had thus far held man as though in bands of steel, to her bosom.

It had long been assumed that gravity was an electrical manifestation and that it belonged in the field of magnetism. Working on this theory a Dr. Alison of the laboratory of the International Electric Corporation had succeeded, by the use of a high speed generator and the liberal use of certain of the rarer elements, in so changing the molecular structure of steel, as to render it neutral to the attraction of the earth. By means of this discovery and the centrifugal force of the earth, great hollow steel globes carrying scores of sightseers were carried to the surface of the moon and journeys there had now become commonplace.

On this particular morning, Dr. Alison, who was a stockily built, silver-haired sort of a grandfather type, was sitting in the library of the Steel Manufacturers Club in New York in company with two prominent steel magnates —Mr. Dobbs of the Continental and Mr. Barry of the Consolidated. These corporations had recently been awarded contracts for a number of the steel globes used in voyaging to the moon, and their presidents were now closing a discussion with the inventor, as to certain technicalities in their manufactures. This business being concluded, the conversation turned to the commercial value of certain minerals which had been found upon the moon. They included immense deposits of salt, sulphur, alum, and gypsum. Dr. Alison pointed out that these minerals were also abundant upon the earth and they were hardly valuable enough to warrant their transportation for so great a distance.

"Nevertheless," objected the well-groomed Barry, "I think the day is close at hand when it will be commercially profitable to bring even sulphur here. It is nothing short of marvelous that a voyage of about 240,000 miles is made in less than two weeks, with the maxium of safety and ease and at relatively little cost. The passenger enters one of these globes and lounges about in comfortable cabins and sleeps in luxurious berths. If he does not look through an observation port he never knows when the ship starts or when it lands for there is no perception of change of movement any more than we know that we are moving on the earth. It is safer and simpler to make a voyage to the moon than it is to ride from New York to San Francisco on a steam railroad."

"It was not always that way," said the

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inventor, laying down a scientific magazine. "The first trip was awful. There was always the fear that we had provided insufficient insulation against the absolute zero of interstellar space. After we left the earth there was a sickening feeling of insecurity and uncertainty and the constant fear that the generators would fail and we would fall back to the earth. It was appalling."

"No doubt," replied Mr. Barry, "but that is all past now and the trip is safer than most journeys on earth. There is absolutely nothing to puncture the shell, for meteorites are either too few or too small to regard, and the moon has no satellite to bump into."

"PARDON me," said the inventor, "but the moon has a satellite. It is a very small one, however, and there is little danger of a collision with it."

"The astronomers have never found one," replied Mr. Barry.

"They will never find this one, either," answered the scientist.

"Too small, no doubt. A small rock, I daresay." Mr. Barry folded his arms, satisfied that he had solved this problem.

"No. It is not a rock."

"What is it then? You must have passed near it on your first voyage."

"Not at all. We were the authors of this satellite. We produced it."

"I know what it is," said the jolly Mr. Dobbs. "It is a piece of machinery from the ship discarded while *en route*. Or a part of the equipment.

"Yes," replied Dr. Alison thoughtfully, "in a way it was part of our equipment, or rather part of our crew. It is the frozen corpse of a man. This corpse is now slowly revolving about the moon with its arms by its sides; stiff and rigid as a log of wood."

Mr. Dobbs seemed to be quite interested at this explanation. He passed his cigar case to the inventor and to his competitor and leaning back in his chair lit one of the Corona Coronas. "Tell us about it," he said to Dr. Alison.

"I will," replied the inventor, "but I must first pledge you to silence. In the first place it would needlessly alarm travelers to the moon, and in the second place it would be shocking to the relatives of this man, provided any ever turn up."

Mr. Dobbs and Mr. Barry agreed to this and Dr. Allison began:

"You are aware," he said, "that my invention was developed on a very small scale in the laboratory. After I became certain of its success I looked about for some area where I could try out a ship sufficiently large to house me and the necessary machinery. To be free from cranks and curiosity seekers, I followed the example of the Wright Brothers and selected the long, sandy bar, bounding Pamlico Sound off the coast of North Carolina. I picked out a deserted spot about 50 miles south of Kitty Hawk, where the Wrights conducted their epochal experiments with their aeroplane.

"I needed a companion and helper and I entered into correspondence with Captain Dick Lawrence of the United States Navy Air Forces, for I knew him to be a daring and intelligent young man. He agreed to come with me and he proved to be invaluable in drawing up the plans, for he was a skillful draughtsman. The necessary materials were ordered with directions to ship them to the nearest town on the mainland. Dick and I then went over on the island and, with the help of two or three carpenters from the mainland, we put up a cabin and a workshop.

"While we awaited the arrival of our material, Dick and I tramped about the island. Our section of it appeared to be uninhabited and was covered with breast high bushes and dwarf trees. It was low, flat and sandy and in no place

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was over fifty feet above sea level. This long sand bar has some name upon the map, but Dick and I, while gazing one night upon the star cluster known as the Pleiades, decided to christen the island 'Merope' after the lost Pleiad, who concealed herself for shame for having loved a mortal, and our ship was to be called 'Alcyone' after another Pleiad.

"On one of these tramps about the island we came upon a rude cabin, and as the day was cold with a drizzling rain falling, we knocked on the door, hoping for shelter. A young man came to the door and at first seemed to be unwilling to let us in. He needed a haircut badly, was unshaven, and negligent in appearance and looked like a tramp. We finally convinced him that we meant him no harm, and he let us in, and we sat down near the open fireplace. We talked with the young man for a few minutes and, gaining confidence, he told us of innumerable reverses he had suffered on the mainland, and which appeared to have embittered his spirit. He had fled to this island and was now living as a recluse. I saw that there was little danger of him communicating our plans to any one, and as we needed help I asked him to aid us in the construction of the 'Alcyone.' To this he agreed and we left after telling him when we expected the material to arrive.

"When the steel came, Dick walked over to the cabin and got the young man and together we went to the mainland and had the material transported to our workshop on the sand bar. Construction was begun immediately. The plans called for an interior diameter of 16 feet with two feet of mineral wool and vacuum insulation, thus making a huge steel globe 20 feet in diameter. The steel hull was made of segments welded together, and the interior was bisected with a steel flooring under which were the generators and their motors. On opposite sides of this floor were the two locks for communication with outdoors. They were simply heavily insulated steel cylinders, about 30 inches high and six feet long, and were provided with an airtight and insulated door with a glass porthole in its center. The circular door in the hull could be opened by means of mechanism in the cabin.

"Thus our cabin was a circular, domed affair with a steel cylinder on the floor on each side and a small table in the center. There were six observation ports provided and these could be connected with these tubes heavily coated with lampblack inside, which brought a reflection of the exterior world to mirrors on the table. They were about the size of a small stovepipe and made the cabin look something like a basement furnace with the hot air pipes extending in different directions.

"IT required about three weeks to construct the ship and then we made several trial trips, sometimes ascending as high as 120 miles above the surface of the earth. The machinery functioned perfectly, but we found that, unless the 'Alcyone' was heavily ballasted with mercury, she was liable to turn completely over, standing us on our heads or in other awkward positions. In our trial trips we always towed the ship well out to sea for when we came down the earth had moved to the eastward. On two occasions we remained in the air at a height of 12 miles and let the earth make one complete revolution under us. In a month's time we felt quite competent to navigate the 'Alcyone' in space and looked forward to a voyage to the moon.

"On several occasions we took along the sad young man, but he used to get on my nerves, with his continual wailing

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about his misfortunes. His people had lost all their money and had neglected to provide him with a career; his best friends had deserted him in his adversity and even his sweetheart had abandoned him for another man. So when the time came for us to start to the moon, we sent 'Hopeless,' as Dick called him, back to his cabin but he must have overheard our plans as you will see.

"WE had applied to a large eastern university for certain data; notably an estimate of the time required to make the trip, using the earth's centrifugal force and the moon's attraction for propulsion, and allowing for the slackening of speed as the ship neared the surface of the moon. According to the figures received it would take us 11 days and 3 hours to make the voyage. As to the existence of an atmosphere on the moon and its temperature, we could get nothing definite; they varied with the astronomers.

"With the aid of the forlorn youth we provisioned the 'Alcyone' for sixty days. We deposited our wills and the plans of the ship with a banking institution with instructions to open them at the end of sixty days. At the hour recommended by the university we crawled through one of the locks into the cabin of the ship. After making sure that everything was secure, I started the motors and forty seconds later the 'Alcyone' left the surface of the earth.

"You will understand that we could not ascend to the moon directly over our heads, but must start at a time when that body was not over a third way around on its circuit, so that in a little over nine days we would be nearing its sphere of attraction. And so up we went, faster and faster, our speed accelerating every minute, although our motion could not be detected within the cabin save by watching the diminishing disc of the earth. By midnight that planet had become a great, cloudy circle; below us and away to our right was the bright moon rushing along at the rate of 37 miles a minute to meet us at the celestial trysting place.

"Up there is neither morning nor noon but always night. The sky is perfectly black and the stars shine steadily like colored jewels. The sun is an electric blue in color and its polar brushes are plainly visible. It is a fearful object to look upon and it would blind you to gaze at it without using smoked glass or some such device. The earth becomes a shield of rose and pearl and gold and is very beautiful to see. The markings of the moon become more plain; for a third of the journey she is bathed in a cold luminous fire and looks not unlike a great mottled ball of crystal.

"All these things we could see on the mirrors before us on the table. Dick and I sat there for the balance of the night enjoying the spectacle. Thus far from freezing with the cold of space, we found the temperature in the cabin to be warm, even hot. Our vacuum insulation had seen to that. I finally persuaded Dick to lie down on a pallet and take a nap. We were now about 12,000 miles from the earth and our speed may have been that of the rotation of the globe at Merope Island which is about 14 miles a minute.

"I was sitting there at the table looking at a reflection of the moon in one of the mirrors, when I heard a most unusual noise. I think my hair stood on end, for my nerves were in the highest possible state of tension. It sounded like a deep groan and appeared to come from under the floor—from somewhere in the hold. I awoke Dick and we descended to the engine room. The motors and generators were humming smoothly and everything seemed to be secure.

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I was about to give up the search when Dick directed his torch down on the floor grating and saw some dark object underneath. We lifted up a section of the grating and there lay the body of a man with his face downward. We carried him up the narrow stairs into the cabin and laid him on the floor. We now saw who it was and guessed how he came to be under the engine room gratings of the 'Alcyone.'

"IT was no other than the sad young man, whom Dick had christened 'Hopeless.' He had overhead one of us mention the hour of departure, and unobserved had come back from his cabin and hid himself below the engine-room floor. There he had become saturated with the fumes of acid and the poisonous gases of the exhaust, some of which managed to leak from the motor cylinders. Incidentally, we used picric acid in the fuel compound. We revived him with a dose of aromatic spirits of ammonia and he talked lucidly for a while and we fully expected his speedy recovery. He was even beginning to wail over his troubles again and said that he had stowed away on the 'Alcyone,' with the idea that he was committing a kind of romantic suicide. But he failed to recover.

"We made a pallet for him on the floor near the table and there he lay, hour after hour, moaning and tossing with the 'Alcyone' shooting through space at the rate of 80 miles an hour. All he could stand on his stomach was a little diluted milk of the canned variety. He had been poisoned by picric acid and we had no antidote. After a few hours he grew calmer and went to sleep. In this manner three and one half days went by and we were at the beginning of the sixth day out from the earth. He then began to grow restless and to complain in his old vein or rancor. I finally lost patience with him and said:

"'Listen, Hopeless, it is you who have forgotten the world and your very humble place it. The world has not forgotten you.'

"I was soon sorry that I said this for about five minutes later Hopeless, with his face yellowed with picric acid, turned over on his side and died.

"We were now faced with a problem. What were we to do with the body of the unfortunate man? The cabin was suffocatingly hot but we did not dare let in any of the cold of outer space. The descent to the earth would take far longer than the time it had taken to gain our present position. We had no ice and no cooling system of any kind and it was very evident that we must do something before long.

"While Dick and I sought for a solution to this problem another day went by with the beautiful disc of the earth shrinking and the moon's apparent diameter gaining in size. It now had lost all of its silvery lustre and appeared like a huge ball of pitted clay, floating silently in the heavens.

"Poor Hopeless lay on the floor of the cabin with a sheet thrown over him. We had taken a few pitiful trinkets from his pockets and placed them upon the table. They included a rusty key-ring with one key attached; half of a lead pencil; a cheap and broken pocket knife; a pocket book containing a photograph of a girl, which we judged to be that of his former sweetheart, and a few coins. But what should we do with his body?

"Dick and I discussed this over and over again. If we did take him to the moon with us, there was no guarantee that we could leave him there; we might find temperatures of boiling water or worse. Dick suggested that we put the body in one of the locks and push it

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out into space. The poor fellow would fall a hundred thousand miles and more until he struck the upper layers of the earth's atmosphere. Then there would be a flash of fire and some one on earth might note a flaming meteor as Hopeless ended in a blaze of glory. The idea shocked me and I cast about for a better plan.

"A careful measurement of the apparent diameters of the earth and the moon showed me that we were now nearing the periphery of the earth's attraction and which lies 215,756 miles from the earth and 22,854 miles from the moon, using mean distance as a basis of calculation. A half hour before we reached this 'No Man's Land' of the two bodies we placed the corpse of the young recluse in the lock and closed the inner door. At the required time I opened the door in the hull an inch or so, fearful of the terrible cold of interstellar space. Nothing happened and I opened it a fraction of an inch more and so on until it was fully drawn back. The insulation in the cabin door of the lock proved magnificent. Some frost formed upon this door and on the thick glass porthole through which we stared at the body inside, resting upon our hands and knees. The outer door being fully open Dick stopped and reversed the engines of the 'Alcyone' and the body slid gently out into space and began its eternal journey about the moon."

The inventor paused and Mr. Barry asked a question.

"Why should it not have fallen directly to the surface of the moon?"

"Because we were approaching the moon at a tangent and the centrifugal force given to the body by the 'Alcyone' was greater than the moon's attraction, which here was negligible, it therefore became a satellite of the moon and will revolve about that globe until the end of time."

The inventor picked up his hat and arose to go. "You will understand," he said to his audience, "that it would be inadvisable to make my explanation public. Gentlemen, I must be going."

"Good by and good luck," called Dobbs after the retreating form of the Columbus of space. "Well, Barry, if that poor boy has any relatives on earth they will never learn of his grave from me."

"One of the few cases," remarked Mr. Barry as he picked up his paper, "where the truth would do no good and very likely much harm."

THE END

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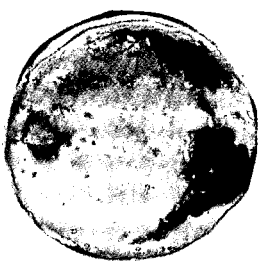

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